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ELECTRIC UTILITY SYSTEMS ENGINEERING DEPARTMENT

USER'S MANUAL

OPTIMIZED GENERATION PLANNING PROGRAM

OGP-6 AND OGP-6A

(PROPRIETARY)

July, 1983

GENERAL ELECTRIC

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User's Manual

Optimized Generation Planning Program

OGP-6 and OGP-6A

(Proprietary)

Generation Planning and Economics

Electric Utility Systems Engineering Department

General Electric Company

Schenectady, New York 12345

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PREFACE

The Optimized Generation Planning (OGP) program is being offered to the electric utility industry to assist planners in analyzing alternate patterns of generation additions.

The General Electric Company warrants that it has exercised professional competence in writing this program and in testing it extensively. The Company does not assume responsibility for specific results obtained from the program and will not be liable for direct, special or consequential damages arising from decisions based on these results.

If a program error is discovered and is reported to the Company within 30 days, the liability of the Company is restricted to the limitations of liability as stated in the License Agreement or in the Agreement for Computer Services signed with the General Electric Information Services Company (GEISCO). The General Electric Company will not assume liability for incorrect results obtained from incorrect input data.

GENERAL OVERVIEW

The Optimized Generation Planning Program (OGP) is a computer program developed by the Electric Utility Systems Engineering Department of the General Electric Company. The OGP program has the capability of performing system reliability, investment costing and production costing calculations. It is a generation expansion planning tool which enables system planners to readily analyze many alternative expansion strategies. System planners can evaluate the existing or committed generation system and also can automatically expand the system to meet a prescribed reliability criterion or percent reserve goal. A maximum of six thermal types and three energy storage types may be defined for automatic expansion. In determining the lowest cost expansion plan, the OGP program will add the thermal and energy storage types alone and in combinations. The results of the various generation expansion strategies may be stored, and their financial impact on the company can be analyzed via execution of the Financial Simulation Program (FSP). FSP is a post-OGP program which develops yearly balance sheets, income statements and cash reports for the OGP study period.

The OGP program is a batch program written in FORTRAN and, as illustrated in Figure 1-1, it consists of two separate modules, the Data Preparation and the Generation Planning Programs. Before the Data Preparation Program can be executed, two auxiliary programs must first be accessed, the Load Model Program and the Generation Model Progam. If a system consisting of more than one company is being studied, the Load Model Program should be run first, because it is the program in which the company designations are assigned. If only one company is being modeled, the Load Model Program and Generation Model Program can be run in any sequence.

The Load Model Program develops a Load Model which becomes input to the Data Preparation Program. This Load Model will be used for production cost and reliability calculations. Input data required for the Load Model Program consists of per-unit load shapes and annual MW peak loads. There are two types of output from the Load Model Program: printed output and binary output. The Load Model may be printed in MW and/or per unit for data checking. The MW model to be read by the Data Preparation Program is written in binary and stored on a permanent disc file. The scenarios that are to be studied will determine the number of different binary Load Models to be developed. Annual peak loads may be changed by inputting new peak load data to the Data Preparation Program. However, the load shapes will not be altered by the Data Preparation Program; the Load Model Program must be run if the shapes are to be modified. The Load Model Program is described in Section 3 of this manual. More detailed information on the OGP Load Model is found in Sections 3 and 4 of the Descriptive Handbook.

The Generation Model Program also develops a binary model which becomes input to the Data Preparation Program. Input data for the Generation Model Program consists of a list of existing and committed generating units and their characteristics; e.g., station name, MW rating, heat rate, date of installation, etc. Any data not specifically defined as input data may subsequently be input at the Data Preparation level. All of the generator

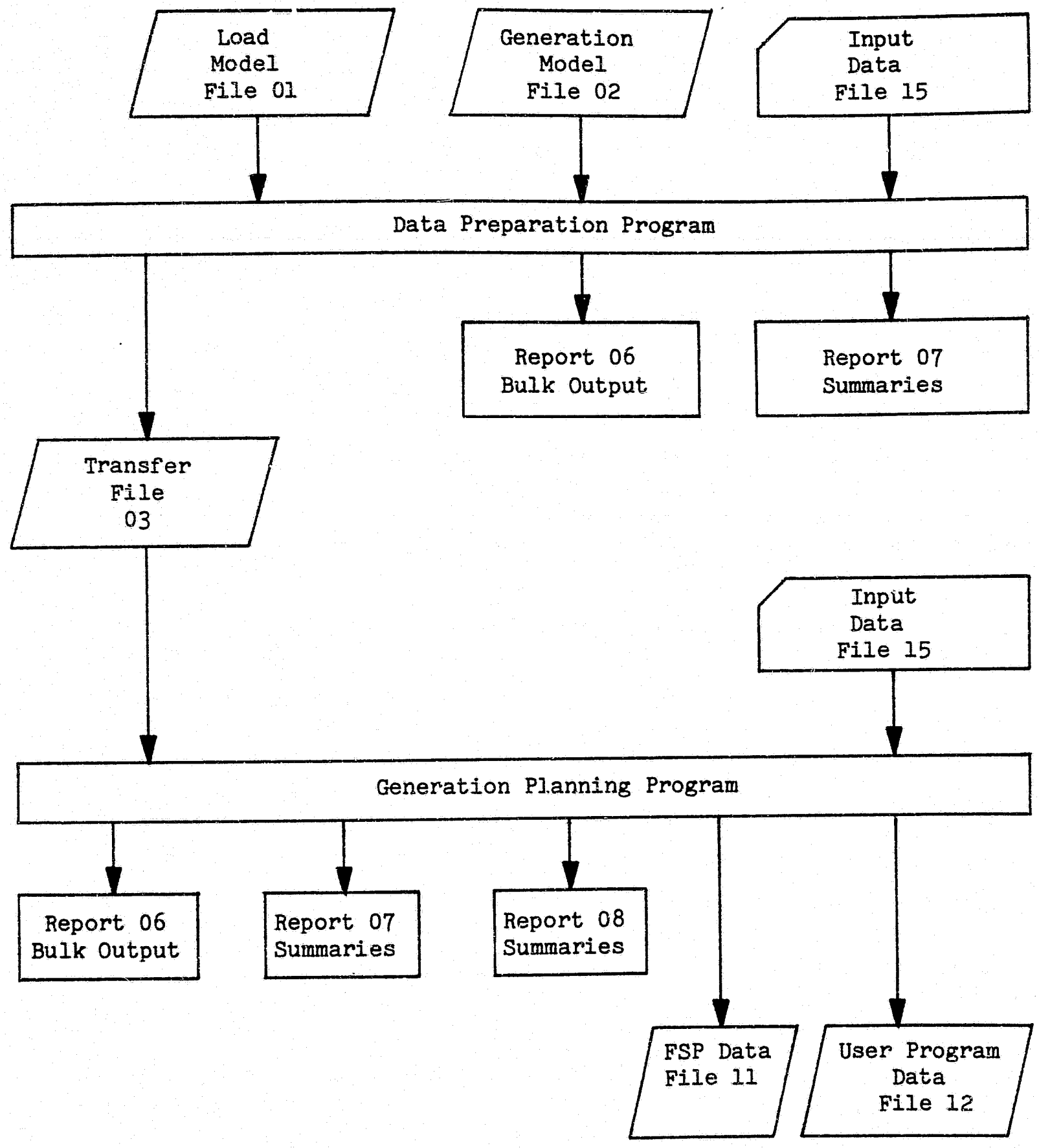

Figure 1-1. Files Used by the OGP Program

data supplied as input is printed in formatted form. The same data is also written in binary form on a permanent disc file, which will become input to the Data Preparation Program. Generally, one binary Generation Model is used for an entire OGP study. The user may override and/or add to the Generation Model data at the Data Preparation level. The Generation Model Program is described in Section 4 of this manual. Section 2 of the Descriptive Handbook provides more detailed information on the Generation Model.

After the binary Load Model and Generation Model have been developed, the OGP program is run as one activity consisting of two parts: the Data Preparation Program and the Generation Planning Program. Each of the programs requires its own input data.

Input data for the Data Preparation Program consists of study parameters; user-supplied standard tables describing heat rates, costs, inflation, and fuel types; and units that are candidates for automatic expansion. The Data Preparation Program reads the binary Generation Model and makes whatever changes are necessary, based on the user's input to the program. At this point, units not previously defined on the Generation Model may be added through input data. Any attributes that have not been specifically assigned to the units are derived from user-supplied standard tables. All of the conventional hydro units are accumulated into one aggregate hydro plant. Likewise, the three different types of energy storage units are combined into three energy storage aggregates. A master list of all units and their characteristics is compiled. All of the data pertaining to thermal units, hydro, energy storage, loads, costs and inflation is processed and written to a binary file, which will be read by the Generation Planning Program.

Two printed output reports are available from the Data Preparation Program. Report 06, which is the bulk output, contains the master list of units and the various cost and inflation tables. Optionally, the Generation Model and annual MW Load Model can also be printed. Report 07 is terminal output, which the user may examine via a terminal or CRT. This report provides a summary of the NAMELIST input data records that were successfully read and a listing of program and system error messages. Details pertaining to Data Preparation input are described in Section 5, and sample output is presented in Section 6 of this manual. Sections 5 and 6 of the Descriptive Handbook contain more information on study data and the Data Preparation Program.

The Generation Planning Program reads system data from the binary transfer file written by the Data Preparation Program. The program then reads a set of input data that defines the study parameters and may include overrides to the generation data transferred from the Data Preparation Program. The program then proceeds to perform the monthly and annual calculations. Depending on which user options are selected, the program will calculate the system reliability, determine the production costs, and expand the system based on a reliability criterion or percent reserve goal.

There are two types of output available from the Generation Planning Program: printed output and binary output. The printed output consists of three reports. Report 06, the bulk output, is generally printed on a high-speed printer. It consists of annual production cost output and

summaries of all of the reliability and expansion calculations through time. Reports 07 and 08 are abbreviated summaries of the expansion calculations and are usually examined via a terminal or CRT. The binary output is written to File 11 and File 12. At the user's option, they can be stored permanently on disc files. File 11 serves as input data for the Financial Simulation Program. File 12 contains production cost and reliability output, which may become input data for a user-supplied FORTRAN program to process this information. Sample output from the Generation Planning Program is shown in Section 6 of this manual.

The dimensions of the OGP program are listed in Table 1-1.

TABLE 1-1
PROGRAM DIMENSIONS

Quantity	Dimension
Number of study years	30
Number of thermal types of generation	6
Number of conventional hydro types	1
Number of energy storage types	3
Number of companies	25
Number of thermal units (including nuclear units)	250
Number of nuclear units	100
Number of manual maintenance patterns	25
Number of fuel types	20
Number of units added/retired each year	100

REMOTE BATCH PROCESSING
Section Index

This section provides the information necessary to access and use OGP on the MARK III Service. This information is discussed in more detail in a set of notes entitled "MARK III and OGP," which is available from EUSED.

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MARK III REMOTE BATCH PROCESSING DESCRIPTION

Remote Batch Data Processing enables you to access the extensive resources of a large-scale computer in your work area through the use of a keyboard terminal. Access to batch programs via a keyboard permits remote terminal control of the computer facility and resources. The combination of batch processing and time-sharing enables you to benefit from the advantages of both, including:

- Direct and immediate accessibility to the system
- Optimum turnaround time
- Computer power and planning programs
- Centralized file system and multi-terminal access

MARK III SERVICE DESCRIPTION

MARK III is divided into two separate computer worlds--Foreground and Background.

- Foreground is the real-time interactive service accessed from a terminal.
- Background is the Remote Batch service implemented on a Honeywell-6000 series computer on which the programs actually run.

The Foreground-Background Interface enables you to do the following:

- Prepare, save, and retrieve input files
- Modify data
- Submit jobs to Background
- Check output status
- Look at all or part of a job's output
- Determine the next processing step

PRELIMINARY REQUIREMENTS

Before running OGP on MARK III, you must first satisfy the following requirements:

1. Sign a MARK III Subscriber Agreement with the General Electric Information Services Company (GEISCO).

2. Obtain your Background user identification number.

3. Request secured tapes in the following situations:

   - If multiple copies of output are required
   - If tapes are being used for Load and Generation Models
   - If output is being stored on tape

MARK III SIGN-ON PROCEDURE

ACCESSING MARK III THROUGH NETWORK

The NETWORK system provides nationwide access to GEISCO's MARK III Service. To connect your terminal to NETWORK, you need your access telephone number, user number, and password. Then follow the procedure listed below.

1. Dial your access telephone number. If you receive a busy signal, wait two or three minutes and dial again.

2. When your terminal is connected to NETWORK, there will be a five-second delay between connection and initiation of the conversational mode between NETWORK and you.

3. For terminals with a transmission rate of ten characters per second (110 baud), no action on your part is required. If 30 cps (300 baud) or 120 cps (1200 baud) is desired, type one or more "H" characters immediately after connection. This action automatically adjusts the system to the terminal input speed.

4. After gaining telephone access to NETWORK, you will receive the following three messages listed under the Computer column. You should also become familiar with the User Response and Explanation information listed below.

Computer	User Response	Explanation
U#=	LAQ43nnn,pword,pid	Background user no., password, and project ID
SYSTEM-	F77	Request FORTRAN 77 System
OLD or NEW	NEW ABCDEFGH	Creating a new file. ABCDEFGH is file name. You are now ready to enter your file called ABCDEFGH (see section on Creating a Data File).
	OR	
	OLD ABCDEFGH	Puts a copy of file ABCDEFGH into current workspace. You are now ready to make changes to the copy of ABCDEFGH in your workspace (see section on Changing a Data File).
	OR	
	Return	The system will wait for other instructions.

CREATING A DATA FILE

After signing onto the NETWORK system, you are ready to enter the data file.

1. Each line must begin with a line number and a space.

2. Then enter the data for that line.

NOTE: 1. Use the "Control" key with the "X" key to delete the line being typed.

2. To correct an error, retype the line number and enter a space. Then enter the correct data for that line. (The system will automatically sequence the lines for you, keeping the latest version of a line.)

SAVING A DATA FILE

After you have entered some of your data, enter SAVe filename to save what has been entered up to that point.

Thereafter, enter REPLACE periodically. This will minimize the work lost in the event of a system failure or an unintentional system disconnect.

NOTE: Initially use SAVe rather than REPlace, because the SAVe command will indicate whether the file name you have chosen is a duplicate. In the event of file name duplication, you will have to rename your data file by entering REName and the new name of the file (see section on Changing a Data File). The SAVe command permanently stores the contents of your workspace in a file with the name assigned by you. REPlace is similar to SAVe except that it replaces the existing contents of the permanent file with what is currently in your workspace.

If a file name is not specified after the SAVe or REPlace command, the system will store the contents of your workspace in the permanent file whose name is associated with your workspace. If in doubt as to the name of the file, enter TTY and the carriage return. The system response will identify the name of the file in your workspace. Specification of the file name with the command assures you that the file will be stored properly.

See the example on the following page.

```
READY
NEW TEST

READY
10 LINE 1
20 LINE 2
30 LINE 3
SAV TEST

READY
40 LINE 5
50 LINE 5
40 LINE 4
REP TEST

READY
LIST TEST


TEST          09:47EST     04/15/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5
```

```
READY
NEW TEST

READY
10 FIRST LINE
20 SECOND LINE
30 THIRD LINE
SAV TEST
DUPLICATE FILE NAME-REPLACE OR RENAME
READY
REN TEST2

READY
SAV TEST2

READY
```

NOTE: Underlined items indicate user's response.

CHANGING A DATA FILE

If data or typographical errors occur, you will want to correct the portions of your data file in which the errors have occurred.

1. First, insert a copy of the file into your current workspace by using the command OLD filename.

2. To correct data or typographical errors in the file, use either of the following methods:

   a. Retype the entire line in which the error exists.

   b. Change only that portion of the line in which the error exists.

      To change a portion of a line or lines, use CHA, CHAV or CHAVC.

CHA	Make the change, but do not print the line(s) before or after the change. Use CHA with caution.
CHAV	Make the change and print the line(s) before and after the change.
CHAVC	Make the change and print the line(s) after the change only.

      The format for the above is:

      CHA n1/old string/new string/n2

      CHAV n1/old string/new string/n2

      CHAVC n1/old string/new string/n2

      The three examples listed above will change all occurrences of "old string" to "new string" from line n1 through line n2. If you want only one line to be changed, set n2 equal to n1 (all occurrences in that line will be changed). If you want only the first occurrence of "old string" (in line n1 or after) changed, omit n2. Omit n1 and n2 if you want the first occurrence of "old string" changed anywhere in the file.

      NOTE: In the event that you incorrectly enter the CHAV or CHAVC delimeters and the system prompts you with MORE >, hit the "interrupt" (or "break") key and begin Step 2 again.

See the examples on the following pages.

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```
READY
OLD TEST

READY
LIST

TEST          15:01EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5


READY
10 RETYPE ALL OF LINE 1
CHAVC 20/LINE/LINE NUMBER/30

20 LINE NUMBER 2

30 LINE NUMBER 3


READY
CHAV 40/LINE/LINE NUMBER/50

40 LINE 4
40 LINE NUMBER 4

50 LINE 5
50 LINE NUMBER 5


READY
REP TEST

READY
```

```
LIST

TEST          15:03EST     04/14/83

10 RETYPE ALL OF LINE 1
20 LINE NUMBER 2
30 LINE NUMBER 3
40 LINE NUMBER 4
50 LINE NUMBER 5


READY
CHAV 20/LINE/ROW
MORE> /

20 LINE NUMBER 2
20 ROW


READY
LIST

TEST          15:34EST     04/14/83

10 RETYPE ALL OF LINE 1
20 ROW
 NUMBER 2
30 LINE NUMBER 3
40 LINE NUMBER 4
50 LINE NUMBER 5


READY
```

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CHANGING A DATA FILE (Continued)

3. There are two ways to delete lines from a file:

   a. Use the EDI DEL command.

      The EDI DEL command is useful when many lines must be deleted. Refer to the format provided below:

      To delete one particular line n, enter EDI DEL n

      OR

      To delete lines nn through nnn, inclusive, enter EDI DEL nn-nnn

      OR

      To delete combinations of single and multiple sequential lines, enter EDI DEL followed by a blank and any combination of n or nn-nnn separated by commas

      (Example: EDI DEL 10,50-100,190,210,400-500)

   b. Type the line number of the line to be deleted immediately followed by a carriage return.

See the example on the following page.

```
READY
OLD TEST

READY
LIST

TEST          15:37EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5
60 LINE 6
70 LINE 7
80 LINE 8
90 LINE 9

READY
EDI DEL 20,40

READY
LIST

TEST          15:38EST     04/14/83

10 LINE 1
30 LINE 3
50 LINE 5
60 LINE 6
70 LINE 7
80 LINE 8
90 LINE 9

READY
EDI DEL 60-80

READY
LIST

TEST          15:38EST     04/14/83

10 LINE 1
30 LINE 3
50 LINE 5
90 LINE 9

READY
30
LIST

TEST          15:39EST     04/14/83

10 LINE 1
50 LINE 5
90 LINE 9

READY
REP TEST

READY
```

RENAMING A DATA FILE

To change your data file and keep the original file intact, use the REName command followed by the SAVe command. Use SAVe rather than REP since it will indicate whether a duplicate file name was used. Thereafter, enter REPLACE periodically. This will minimize the work lost in the event of a system failure or an unintentional system disconnect. See the example listed below.

```
READY
OLD TEST

READY
LIST

TEST          15:46EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5


READY
REN NEWTEST

READY
SAV NEWTEST

READY
LIST NEWTEST

NEWTEST       15:46EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5


READY
60 FILE NEWTEST NEEDS A LINE 6
REP NEWTEST

READY
LIST NEWTEST

NEWTEST       15:47EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5
60 FILE NEWTEST NEEDS A LINE 6


READY
```

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RENAMING A DATA FILE

To change your data file and keep the original file intact, use the RENname command followed by the SAVe command. Use SAVe rather than REP since it will indicate whether a duplicate file name was used. Thereafter, enter REPLACE periodically. This will minimize the work lost in the event of a system failure or an unintentional system disconnect. See the example listed below.

```
READY
OLD TEST

READY
LIST

TEST          15:46EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5


READY
REN NEWTEST

READY
SAV NEWTEST

READY
LIST NEWTEST

NEWTEST       15:46EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5


READY
60 FILE NEWTEST NEEDS A LINE 6
REP NEWTEST

READY
LIST NEWTEST

NEWTEST       15:47EST     04/14/83

10 LINE 1
20 LINE 2
30 LINE 3
40 LINE 4
50 LINE 5
60 FILE NEWTEST NEEDS A LINE 6


READY
```

INPUT FILE SETUP

All input files used to run the Generation Model, Load Model, Data Preparation, and Generation Planning Programs have the same general format requirements:

- Background Directives
- Job Control Cards
- Input Data

BACKGROUND DIRECTIVES

The Background Directives are commands entered from Foreground (either interactively or through a Foreground data file), which cause certain functions to be performed in Background. The available Background Directives include:

BCR filename;SIZE(1,xx)

- It is used to create file space in Background.
- Filename is the name assigned by the user (8 characters maximum).
- xx is the maximum number of blocks of 320 words to be reserved. The user will be charged only for the actual storage used.
- A Background file can be created only once. If the user tries to create a file that already exists, the activity will be aborted by the system.

BPU filename

- It is used to purge a Background file.

BCA;

- Lists the file names in the Background catalog.

BRU *

- Submits to Background for execution the Job Control Cards and data following the last Background Directive.

BEN

- Indicates that all of the Background Directives have been entered.

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JOB CONTROL CARDS

Job Control Cards identify the proper programs for execution and control the output options for a run that has been submitted to Background for execution. All Job Control Cards always have a $ in column 1, the control card name in column 8, and the control card variables or options in column 16. Inclusion of ##NORM before the first Job Control Card allows the : to be used as a tabbing instruction, and eliminates the need to space to the location of specific columns. The variables and options must not have any embedded blanks, because a blank indicates the end of that control card.

The Job Control Cards used for the four programs are very similar. In this section we will discuss them in general terms and explain the variables or options that are available. In the section on Sample Input Files, we will review the specific Job Control Cards required for each program.

The available Job Control Cards include:

##NORM

Allows the : to be used as an automatic tab function and also transfers the line number and one trailing blank (if one exists) from the beginning of the line to column 73.

$:PROGRAM:RLHS

Causes the program to be executed.

$:LIMITS:time,storage 1,storage 2,print lines

time	Maximum processor run time (in hundredths of an hour)
storage 1	Maximum core storage for running the program
storage 2	Amount of core storage that can be shared with COMMON during the loading of the program
print lines	Maximum number of lines to be printed during the program execution

$:PRMFL:H*,E,R,AQ43093/program name

Tells the system which program is to be executed; the names of the various programs are listed below.

.GNMD6	Generation Model
.LDMD6	Load Model
.GP6DP	Data Preparation (OGP-6)
.GP6AD	Data Preparation (OGP-6A)
.GP6GP	Generation Planning (OGP-6)
.GP6AG	Generation Planning (OGP-6A)

JOB CONTROL CARDS (Continued)

$PRMFL:file code,permit,mode,file string

Used to define a permanent disc file. The file space must have been created earlier with the BCR Background Directive.

file code	A unique two-character designation assigned by the programmer to identify a given file within an activity.
permit	Requests permission for the operation to be performed: R - Read only W - Write only R/W - Read and/or Write
mode	Specifies whether the file is S - Linked, i.e., Sequential OR R - Random
file string	Definition in the file system descriptor includes the catalog, password (optional), and file name that describes the specific file.

$:FILE:file code,LUD,access

Used to define a temporary disc file.

file code	A unique two-character designation assigned by the programmer to identify a given file within an activity.
LUD	Logical Unit Designator The first portion consists of a two- or three-character identifier by which the file may be recognized in a subsequent activity. The second portion indicates the file disposition desired at the end of the activity. R - Release S - Save for subsequent activity
access	File size in 3840-word links, followed by an L (for linked, i.e., sequential file).

JOB CONTROL CARDS (Continued)

$:REMOTE:file code

Assigns an output file to a Remote station for printing.

file code	A unique two-character designation assigned by the programmer to identify the given file within an activity.

$:DATA:15

Assigns the user's input data file to a disc for input to the program.

The specific Job Control Cards used in running the four different programs will be reviewed in more detail later in this section and also in the sections on each specific program. Once the Job Control Cards are established for a specific program, it is unlikely that they will have to be changed. The only exception would be cards that define a permanent disc file which is read or written to by the program.

The input files used to run several different programs can be combined and submitted as a single job. In such situations the Background Directives and ##NORM would appear only at the beginning of the combined file.

INPUT DATA

The Input Data follows the Background Directives and Job Control Cards. The specific data will be discussed in the portions of this manual that describe the input data requirements for the individual programs. The Input Data consists of general data, which is required by the program, and optional override data that can modify previously input data.

SAMPLE INPUT FILES

The following pages contain sample input files for the individual programs. For each program, a typical file is shown with an explanation of the various Background Directives and Job Control Cards used for the specific program.

GENERATION MODEL

Listed below is a typical file used to run the Generation Model Program.

```
100  BCR NEW GENERATION MODEL;SIZE(1,xx)
110  BRU *
120  BEN
130##NORM
140$:PROGRAM:RLHS
150$:LIMITS:02,25K,,10K
160$:PRMFL:H*,E,R,AQ53093/.GNMD6
170$:PRMFL:01,R,S,AQ43xxx/ORIGINAL GENERATION MODEL
180$:PRMFL:02,W,S,AQ43xxx/NEW GENERATION MODEL
190$:DATA:15
200$:REMOTE:06
210$:REMOTE:07
220  Name
230  Address
240  City, State, Zip
250  Additional Mailing
260  Information
270  User ID
300  $INPUT
     .
     Generation Model Data
     .
1000 Last input data must end with $
```

NOTE: If permanent space in Background had been created previously, DELETE

```
100  BCR NEW GENERATION MODEL;SIZE(1,xx)
```

If the Generation Model is to be created from scratch, DELETE

```
170$:PRMFL:01,R,S,AQ43xxx/ORIGINAL GENERATION MODEL
```

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GENERATION MODEL (Continued)

The following comments explain the function of specific lines in the file:

line 100	Creates Background file space to which the new Generation Model will be written. The maximum file size should equal 12 times the number of records to be written. Delete this line if the file space already exists.
line 150	Program limits recommended by EUSED.
line 160	.GNMD6 (Generation Model Program) is to be executed.
line 170	Read in the original Generation Model (File 01) to be modified. If the Generation Model is being created from scratch, this line would be omitted.
line 180	Writes the new Generation Model (File 02) to the file created in line 100.
lines 200-210	Output is to be printed remotely (see Output Options section).
lines 220-270	Six lines of optional information that will be printed as a header on the first page of output.
line 300	Beginning of input data.

LOAD MODEL

Listed below is a typical input file for the Load Model Program:

```
100  BCR NEW LOAD MODEL;SIZE(1,150)
110  BRU *
120  BEN
130##NORM
140$:PROGRAM:RLHS
150$:LIMITS:02,32K,,10K
160$:PRMFL:H*,E,R,AQ43093/.LDMD6
170$:PRMFL:01,W,S,AQ43xxx/NEW LOAD MODEL
180$:PRMFL:02,R,S,AQ43xxx/ORIGINAL LOAD MODEL
190$:DATA:15
200$:REMOTE:06
210$:REMOTE:07
220  Name
230  Address
240  City, State, Zip
250  Additional Mailing
260  Instructions
270  User ID
300  $INPUT
     .
     Load Model Data
     .
1000 Last input data must end with $
```

NOTE: If permanent space in Background had been created previously,
DELETE
100 BCR NEW LOAD MODEL;SIZE(1,150)

If the Load Model is to be created from scratch,
DELETE
180$:PRMFL:02,R,S,AQ43xxx/ORIGINAL LOAD MODEL

0 0 2 5 1 7

LOAD MODEL (Continued)

The following comments explain the function of specific lines in the file:

line 100	Creates Background file space to which the new Load Model will be written. A maximum file size of 150 will be sufficient for a 40-year Load Model. If file space already exists, delete this line.
line 150	Program limits recommended by EUSED.
line 160	.LDMD6 (Load Model Program) is to be executed.
line 170	Writes the new Load Model (File 01) to the file created in line 100.
line 180	Reads in the original Load Model (File 02) to be modified. If creating a Load Model from scratch, this line would be omitted.
lines 200-210	Output is to be printed remotely (see Output Options section).
lines 220-270	Six lines of optional information that will be printed as a header on the first page of output.
line 300	Beginning of input data.

DATA PREPARATION AND GENERATION PLANNING

Listed below is a typical input file setup for running OGP. This file enables the Data Preparation and Generation Planning Programs to be run in one job.

```
100  BRU *
110  BEN
120##NORM
130$:PROGRAM:RLHS
140$:LIMITS:02,70K,,10K
150$:PRMFL:H*,E,R,AQ43093/.GP6DP
160$:PRMFL:01,R,S,AQ43xxx/LOAD MODEL
170$:PRMFL:02,R,S,AQ43xxx/GENERATION MODEL
180$:FILE:03,X3S,20L
190$:DATA:15
200$:REMOTE:06
210$:REMOTE:07
220  Name
230  Address
240  City, State, Zip
250  Additional Mailing
260  Instructions
270  User ID
300  $INPUT
     .
     Data Preparation Data
     .
1000 Last input data must end with $
2000$:PROGRAM:RLHS
2010$:LIMITS:50,72K,8K,20K
2020$:PRMFL:H*,E,R,AQ43093/.GP6GP
2030$:FILE:01,X1R,100L
2040$:FILE:02,X2R,10L
2050$:FILE:03,X3R,20L
2060$:FILE:04,X4R,10L
2070$:FILE:10,X10R,2L
2080$:FILE:11,X11R,30L
2090$:FILE:12,X12R,50L
2100$:FILE:13,X13R,5L
2110$:FILE:14,X14R,2L
2120$:FILE:16,X16R,5L
2130$:DATA:15
2140$:REMOTE:06
2150$:REMOTE:07
2160$:REMOTE:08
2170 $INPUT
     .
     Generation Planning Data
     .
3000 Last input data must end with $
```

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DATA PREPARATION AND GENERATION PLANNING (Continued)

The following comments explain the function of some of the Data Preparation and Generation Planning Job Control Cards:

line 140	Program limits for the Data Preparation Program recommended by EUSED.
line 150	.GP6DP (Data Preparation for OGP-6) is to be executed.
line 160	Informs the system of the Load Model to be used.
line 170	Informs the system of the Generation Model to be used.
line 180	FILE:03 is the transfer file written by the Data Preparation Program and read in by the Generation Planning Program. If the Data Preparation and Generation Planning Programs were to be run as separate jobs, this line would be replaced by $:PRMFL:03,W,S,AQ43xxx/filename. If a permanent file does not exist, file space must be created by the BCR directive.
lines 200-210, 2140-2160	The output will be printed remotely (see section on Output Options).
lines 220-270	Six lines of optional information that will be printed as a header on the first page of output. Sixty characters per line are allowed. Do not use the character : in any of these six lines.
line 300	Beginning of input data for Data Preparation Program.
line 1000	End of set of input data must end with $. If ending $ is input on a line by itself, must indent $ so that it is entered beyond column 3.
line 2010	Program limits for the Generation Planning Program recommended by EUSED.
line 2020	.GP6GP (Generation Planning for OGP-6) is to be executed.
line 2050	Transfer file written by the Data Preparation Program. If the Data Preparation and Generation Planning Programs are run separately, this line would be replaced by $:PRMFL:03,R,S,AQ43xxx/filename.
lines 2030, 2040, 2060, 2070, 2100, 2120	Temporary working files needed by the program.

DATA PREPARATION AND GENERATION PLANNING (Continued)

line 2080 — File 11 is the transfer file to the Financial Simulation Program (FSP). To save this data on a permanent file, this line would become $:PRMFL:11,W,S,AQ43xxx/filename.

line 2090 — File 12 is the file to which the output is written to save it for further analysis with a user-supplied program. To permanently save these results, this line would be replaced by $:PRMFL:W,S,AQ43xxx/filename.

line 2110 — File 14 is the file used to read or write the production cost maintenance schedule. To permanently save the maintenance schedule, this line would be replaced by:

$:PRMFL:14,W,S,AQ43xxx/filename if LMAINT=1, i.e., write production cost maintenance schedule for use in a future run. If permanent file does not exist, must create space with the BCR directive.

$:PRMFL:14,R,S,AQ43xxx/filename if LMAINT=-1, i.e., read production cost maintenance schedule written by a previous run.

line 2200 — Beginning of Generation Planning input.

line 3000 — End of set of input data must end with $. If ending $ is input on a line all by itself, must indent $ so that it is entered beyond column 3.

If the Data Preparation and Generation Planning Programs are to be run separately, two changes must be made to the input file listed above. First, the transfer file (File 03) must be written to a permanent disc file. Second, the Background Directives and ##NORM must also appear before the Job Control Cards for the Generation Planning Program.

OUTPUT OPTIONS

Several options are available for printing the output from the programs:

- REMOTE
- SYSOUT
- TAPE

They are discussed in this section.

REMOTE

The $:REMOTE control card assigns an output file to a Remote station for use by the Network Processing Supervisor. These files may be scanned on your terminal (see section on Scanning the Output) or printed on your own high-speed printer (see section on Printing the Output). You can have Remote output printed at a nearby GEISCO installation through the Remote Media Service (RMS). Details on initiating an RMS session are included in the "MARK III and OGP" notes available from EUSED.

The output files are stored at no charge for approximately 32 hours. There is, however, a printing charge.

The use of the $:REMOTE cards is illustrated in the section on Input File Setup.

SYSOUT

If a remote printer is not available, the output can be printed on-line at a MARK III installation and mailed to you. In the preceding sample files, the $:REMOTE would be changed to $:SYSOUT.

With this option, the output can be printed only once.

NOTE: If you are using SYSOUT, you must include the mailing label information in your data file after the Job Control Cards and before the starting $INPUT (e.g., lines 220-270 on page 2-19).

You may supply up to and including 6 lines, 60 characters per line, of mailing label information. You should include your name, mailing address and User ID.

CAUTION: Do not use the character : in your mailing label.

This mailing label information is printed on the first page of Report 06. Your User ID is required in order for GEISCO to allocate mailing charges.

OUTPUT OPTIONS (Continued)

TAPE

The third option allows you to write the output to a secured tape (which was previously reserved by you through your GEISCO representative) and then print the contents of that tape. The Job Control Cards used in running the Data Preparation and Generation Planning Programs as one job (see page 2-19) would be changed to include the following control cards:

```
200$:PRMFL:06/X6SD,W,S,TAPE/AQ43xxx/tape name

2140$:TAPE9:06,X6SD

5000$:CONVER
5010$:LIMITS:05,10K,,25K
5020FILES 000002000001
5030$:TAPE9:IN,X6D
5040$:PRINT:OT    or    $:REMOTE:OT
```

The following comments explain the function of these Job Control Cards:

line 200	Writes the bulk output (Report 06) from the Data Preparation Program on a secured tape with the given tape name. The /X6SD ensures that the output from the Generation Planning Program is written to the same tape.
line 2140	Writes the bulk output (Report 06) from the Generation Planning Program on the same tape as above.
line 5000	Begins an activity which reads this tape and prints the contents.
line 5010	Establishes limits, which are recommended by EUSED for the CONVER activity.
line 5020	Directs the system to print the contents of two files on the tape (the output from the two programs), beginning with file 1. Note that this line does not describe a JCL and, therefore, no $ is included.
line 5030	Specifies the input, in this case, a tape to be printed.
line 5040	Specifies the output option to be used in printing the tape. PRINT causes printing to be done on-line.

To obtain multiple copies, include the following line:

```
5015$:FORM:USE  n  PART PAPER AND DECOLLATE,
```

where n is the number of copies desired.

Information on using tapes to obtain microfiche is found in the "MARK III and OGP" notes available from EUSED.

0 0 2 5 1 7

RUNNING THE PROGRAM

1. When a file is ready to be run, use the BACK command to send your file from Foreground to Background for processing. The command is:

   BACK filename

   CAUTION: If more than one case is to be submitted at the same time, you must use the following commands to create a new file for each case:

   OLD filename
   REN new filename
   SAV new filename

   make changes as needed for the new case

   REP new filename (save changes in permanent storage)
   BACK new filename (run the case)

2. If you want to take advantage of the deferred priority processing option (which yields a 25 percent savings), specify the following:

   BACK filename;PRI(D)

3. To terminate a job before it runs, enter BAB Lxxx (Job ID) in response to the READY indication from the system.

JOB STATUS

After a data file has been submitted to Background, you can periodically check its status. You can use the BST LIST command to obtain a list of the JOB ID's presently in the system within your catalog.

To obtain job status information, enter the command BST Lxxx, where Lxxx is the Job ID. One of the following messages will be printed in response to this command:

Message	Description
Lxxx ANNOUNCED TO BACKGROUND	Recognition is given by Background that the job exists. Lowest level of status. **NOTE: The file should not be changed, since it has not yet been sent to Background.**
Lxxx ABORTED--NOT KNOWN TO BACKGROUND	The user has not been correctly validated for Background.
Lxxx DOES NOT EXIST	Job not in Background (check Job ID).
Lxxx WAITING	In Foreground--waiting to be moved to Background. User should not change the file until it has been transmitted.
Lxxx TRANSMITTED	Job is in Background, but execution has not started.
Lxxx WAITING-IN-HOLD	MARK III operator has requested that the job not be executed at this time.
Lxxx AWAITING ALLOCATION	In Background--awaiting allocation of core.
Lxxx AWAITING PERIPHERALS	In Background--awaiting required peripherals.
Lxxx AWAITING CORE ALLOCATION	In Background--awaiting sufficient core to be run.
Lxxx WAITING--SIEVE EXCEEDED	Processed by preprocessor--but places excessive demands on Background system resources.
Lxxx EXECUTING	Job is processing.
Lxxx TERMINATING	Output is being written to Foreground.
Lxxx STATUS UNAVAILABLE	No response can be received from Background at present time.
BACKGROUND AVAILABLE	Background system currently available.
BACKGROUND UNAVAILABLE	Background system currently unavailable.

JOB STATUS (Continued)

If the job has been completed, the system response to BST Lxxx is:

Lxxx DONE	
OOnnn RETURNED	Disc pages transferred to Foreground.
OOnnn SUBMITTED	Disc pages transferred to Background.
SUBMITTED/PURGED FILES	
-NONE	
SYSOUT REPORTS	
Lxxx01$$-RET'D	System Report
Lxxx0106-RET'D	Data Preparation Bulk Output
Lxxx0107-RET'D	Data Preparation Summary Output
Lxxx0206-RET'D	Generation Planning Bulk Output
Lxxx0207-RET'D	Generation Planning Summary Output
Lxxx0210-RET'D	Additional Generation Planning Summary Output*
Lxxx00**-RET'D	System Accounting Report

* Corresponds to REMOTE:08 (these are octal numbers).

LISTING THE SUMMARIES

It is possible to locate both data and system level errors by printing the summaries or scanning the output on your terminal. Printing the summaries will be discussed first.

$$ REPORT

This report (always in activity 01) will contain a NORMAL TERMINATION message or a system level ABORT message (see section on Error Messages--System in this manual for descriptions and probable solutions to the most common ABORT messages). This output can be printed on your terminal by issuing the following command:

BLIST Lxxx01$$;B,L

where: Lxxx = Job ID
01 = Activity Number
$$ = Report Code
B = Option--suppress multiple blanks
L = Option--suppress line numbers

See the example on the following pages.

0025517

```
BST L5G7
L5G7 DONE
00197 RETURNED
00006 SUBMITTED
 SUBMITTED/PURGED FILES
 -NONE
 SYSOUT REPORTS
L5G701$$-RET'D
L5G70106-RET'D
L5G70107-RET'D
L5G70206-RET'D
L5G70207-RET'D
L5G70210-RET'D
L5G700**-RET'D

READY
BLIST L5G701$$;B,L

BEGIN FILE - L5G701$$

$$ ML5G7 ENTERED S1170A AT 13.953 FROM SPAWN  0-28-01


0001 $ SNUMB ML5G7 SPAWNED BY 1DIP1-01
0002 $ IDENT AQ43005,ML5G7
0003 $$ USERID AQ43005$ RRMARK3
0004 A$ PROGRAM RLHS 00130
0005 $ LIMITS 02,75K,,10K 00140
0006 $$ PRMFL H*,E,R,AQ43093/.GP6AD 00150
0007 $$ PRMFL 01,R,S,AQ43005/L.MUN6A 00160
0008 $$ PRMFL 02,R,S,AQ43005/GMUN6A 00170
0009 $ FILE 03,X3S,20L 00180
0010 $ REMOTE 06 00190
0011 $ REMOTE 07 00200
0012 $ DATA 15 00210
0013 A$ PROGRAM RLHS 01930
0014 $ LIMITS 30,89K,8K,20K 01940
0015 $$ PRMFL H*,E,R,AQ43093/.GP6AG 01950
0016 $ FILE 01,X1R,100L 01960
0017 $ FILE 02,X2R,10L 01970
0018 $ FILE 03,X3R,20L 01980
0019 $ FILE 04,X4R,10L 01990
0020 $ FILE 10,X10R,2L 02000
0021 $ FILE 11,X11R,10L 02010
0022 $ FILE 12,X12R,5L 02020
0023 $ FILE 13,X13R,5L 02030
0024 $ FILE 14,X14R,2L 02040
0025 $ FILE 16,X16R,10L 02050
0026 $ REMOTE 06 02060
0027 $ REMOTE 07 02070
0028 $ REMOTE 08 02080
0029 $ DATA 15 02090
0030 $ ENDJOB
 TOTAL CARD COUNT THIS JOB = 000262


* ACTY-01 $CARD #0004 .GP6AD 01/12/83 SW=000000000000
```

```
 * NORMAL TERMINATION AT 025423 I=5000 SW=000000000000

 START 13.958 LINES 1450 PROC 0.0007 I/O 0.001 IU 5 MEMORY 75K
 STOP 13.962 LIMIT 10240 LIMIT 0.0200 LIMIT CU 5 M*T 909
 SWAP 0.000 PK MOUNT 0
 LAPSE 0.003 FC D TYPE BUSY IP/AT FP/RT IS/*C MS/*E ADDRESS T*/PK*

 H* R MSU500 P 179 0 0 300 300R 0-08-08
 01 R MSU500 P 277 0 12 37 37 0-08-03
 02 R MSU500 P 160 0 9 9 9 0-08-03
 03 S MSU500 * 384 0 35 240 240 0-28-04
 06 SYOUT
 07 SYOUT
 15 R MSU500 * 384 0 9 9 9 0-28-07
 P* SYOUT

 RC-06 1416 LINES AT STA. L*
 RC-07 34 LINES AT STA. L*


 CRUS= .0147 PRIORITY= DEFERRED



* ACTY-02 $CARD #0013 .GP6AG 01/12/83 SW=000000000000
 * NORMAL TERMINATION AT 133373 I=5020 SW=000000000000

 START 13.963 LINES 2775 PROC 0.0128 I/O 0.005 IU 5 MEMORY 89K
 STOP 14.015 LIMIT 20480 LIMIT 0.3000 LIMIT CU 5 M*T 17072
 SWAP 0.000 PK MOUNT 0
 LAPSE 0.052 FC D TYPE BUSY IP/AT FP/RT IS/*C MS/*E ADDRESS T*/PK*

 03 R MSU500 * 565 35 19 240 240 0-28-04
 H* R MSU500 P 1101 0 0 504 504R 1-10-06
 01 R MSU500 * 10763 0 12 1200 1200 0-28-14
 02 R MSU500 * 2334 0 11 120 120 1-10-03
 04 R MSU500 * 565 0 13 120 120 1-10-05
 10 R MSU500 * 234 0 1 24 24 1-10-07
 11 R MSU500 * 11 0 1 120 120 1-10-09
 12 R MSU500 * 0 0 0 60 60 1-10-11
 13 R MSU500 * 0 0 0 60 60 1-10-13
 14 R MSU500 * 0 0 0 24 24 1-10-15
 16 R MSU500 * 0 0 0 120 120 1-10-04
 06 SYOUT
 07 SYOUT
 08 SYOUT
 15 R MSU500 * 139 0 3 3 3 0-28-07
 P* SYOUT

 RC-06 2479 LINES AT STA. L*
 RC-07 194 LINES AT STA. L*
 RC-10 102 LINES AT STA. L*


 CRUS= .2506 PRIORITY= DEFERRED

 READY
```

LISTING THE SUMMARIES (Continued)

ACTIVITY 01, REPORT 07

Before printing the bulk output, print Report 07 on your terminal in order to verify that there were no fatal errors, i.e., system aborts.

1. To print Report 07 of Activity 01, enter the following:

BLIST Lxxx0107;L,W85

where: Lxxx = Job ID
0107 = Activity 01 and Report 07
L = Option--suppress line numbers
W85 = Option--terminal width of 85 characters

See the example on the following page.

2. The following messages will be printed by Report 07 if the execution of the Data Preparation Program was successful:

"NAMELIST DATA RECORD 1 HAS BEEN READ"
"NAMELIST DATA RECORD 2 HAS BEEN READ"
.
.
.
.
"****** END OF NAMELIST DATA CHECKING ******"

"ALL AVAILABLE DATA HAVE BEEN PROCESSED"

a. If the message "END OF NAMELIST DATA CHECKING" was not printed, it means there was an error in NAMELIST data. The error would have occurred in reading that record which was not identified as having been read. For example, if the last message printed was "NAMELIST DATA RECORD 3 HAS BEEN READ," the error would have occurred in NAMELIST record 4. You should refer to your data file and examine record 4. If you cannot find the error, you can scan Report 06 for errors, because the system prints NAMELIST error messages on Report 06. An example of scanning may be found on the page entitled Scanning the Output.

b. If the message "END OF NAMELIST DATA CHECKING" was printed, but "ALL AVAILABLE DATA HAVE BEEN PROCESSED" was not printed, it means that some type of system level error occurred. System level errors are printed on Report 06, and you can scan Report 06 for the error.

```
BLIST L5G70107;L,W85

BEGIN FILE - L5G70107

    SNUMB = ML5G7, ACTIVITY # = 01, REPORT CODE = 07, RECORD COUNT = 000034


  GENERAL ELECTRIC COMPANY, DATA PREP TO PLANNING PROGRAM OGP-6A V6.20
  01/12/83    13.959   JOB NUMBER 1ML5G7

  COPYRIGHT, 1971, GENERAL ELECTRIC

  OGP-6A ELECTRIC SYSTEM, FILE UMOGP6A
  USERS MANUAL EXAMPLE

  NAMELIST DATA RECORD   1 HAS BEEN READ
  NAMELIST DATA RECORD   2 HAS BEEN READ
  NAMELIST DATA RECORD   3 HAS BEEN READ
  NAMELIST DATA RECORD   4 HAS BEEN READ
  NAMELIST DATA RECORD   5 HAS BEEN READ
  NAMELIST DATA RECORD   6 HAS BEEN READ

  ****** END OF NAMELIST DATA CHECKING ******


  GENERAL ELECTRIC COMPANY, DATA PREP TO PLANNING PROGRAM OGP-6A V6.20
  01/12/83    13.959   JOB NUMBER 1ML5G7

  COPYRIGHT, 1971, GENERAL ELECTRIC

  OGP-6A ELECTRIC SYSTEM, FILE UMOGP6A
  USERS MANUAL EXAMPLE



  ALL AVAILABLE DATA HAVE BEEN PROCESSED

READY
```

The BLIST command could also be used to list the summaries (Report 07 and Report 10) available from the Generation Planning Program (Activity 02). If the message "PROGRAM MUST TERMINATE-ERROR IN DATA PREP" prints, you should refer to your Actvity 01, Report 07 and analyze the error message printed.

SCANNING THE OUTPUT

The $$, 07 and 10 file codes can be printed, using the BLIST command as shown in the previous examples. However, when searching Report 06 for errors, the BEDIT command is to be used, provided you used $:REMOTE:06 in the data file.

1. To scan the output of Activity 01, use the BEDIT command as follows:

```
BEDIT JOB:Lxxx0106

FORMAT > U      User's output format
CODE >          Not used--hit carriage return
EDIT > B        Suppress blanks
CMD > PE        Print errors
```

2. If you strike the "break" or "interrupt" key, the system will stop printing the file.

3. After all the errors are printed, the system will print CMD >.

4. Enter X to exit the BEDIT mode.

5. If an Exponential Overflow or Divide Check occurred, you may use the BEDIT command as follows:

```
BEDIT JOB:Lxxx0106

FORMAT > U
CODE >    Carriage Return
EDIT > B
CMD > L/EXPONENTIAL/          (Locate EXPONENTIAL)
CMD > T,10                    (Type 10 lines)
OR  CMD > L/DIVIDE/           (Locate DIVIDE)
    CMD > T,10                (Type 10 lines)
```

The example on the following page shows how the BEDIT command is used to locate a data error in the Data Preparation input.

```
BST L1Y7
L1Y7 DONE
00026 RETURNED
00006 SUBMITTED
 SUBMITTED/PURGED FILES
 -NONE
 SYSOUT REPORTS
L1Y701$$-RET'D
L1Y70106-RET'D
L1Y70107-RET'D
L1Y70206-RET'D
L1Y70207-RET'D
L1Y700**-RET'D

READY
BLIST L1Y70107;L,W85

BEGIN FILE - L1Y70107

    SNUMB = ML1Y7, ACTIVITY # = 01, REPORT CODE = 07, RECORD COUNT = 000012

 GENERAL ELECTRIC COMPANY, DATA PREP TO PLANNING PROGRAM OGP-6A V6.20
 01/10/83    13.166  JOB NUMBER 1ML1Y7

 COPYRIGHT, 1971, GENERAL ELECTRIC

 OGP-6A ELECTRIC SYSTEM, FILE UNOGP6A
 USERS MANUAL EXAMPLE

 NAMELIST DATA RECORD  1 HAS BEEN READ
 NAMELIST DATA RECORD  2 HAS BEEN READ
```

"END OF NAMELIST DATA CHECKING" DID NOT PRINT, INDICATING A NAMELIST DATA ERROR.

```
READY
BEDIT JOB:L1Y70106
FORMAT > U
CODE >
EDIT > B
CMD > PE
237  ERROR #43; TRACE OF CALLS IN REVERSE ORDER
238  CALLING ID ABSOLUTE ARGUMENT ARGUMENT ARGUMENT ARGUMENT ARGUMENT
239  ROUTINE # LOCATION #1 #2 #3 #4 #5
240  ..NMLI 410 027702 013067000053 013070010300
241  LISTIN 181 067670 000000000017 314547646320
242  GPA 218 221320 000000000001
243  .FSETU 0 024057
244  ILLEGAL VARIABLE NAME BELOW
245 ERROR IN COLUMN 6 OF
246 KREAD=0$ 01640
247 SKIPPING TO NEXT VARIABLE NAME
CMD > X

READY
```

ILLEGAL VARIABLE NAME ON LINE 1640 OF THE DATA FILE. KREAD SHOULD BE NREAD.

PRINTING THE OUTPUT

Any file declared as REMOTE (see section on Output Options) can be printed via the user's remote high-speed printer in the following way:

PRINT JOB:Lxxxacrc;ltid;NONE

where: PRINT JOB: = Command requesting High-Speed Service
Lxxx = Job ID
ac = Activity code (01--Data Prep., 02--Generation Planning)
rc = Report code (06--Bulk Output, 07, 10--Summaries)
ltid = High-speed terminal ID (obtained from your local GEISCO representative)
NONE = Options--none requested. May use COP(n) in this field to obtain multiple copies of your output (where n is the number of copies requested).

OR

PRINT JOB:Lxxx;ltid;NONE

which prints all REMOTE and system files associated with Job Lxxx.

NOTE: Any report code may be printed via the high-speed terminal.

To obtain a listing of all jobs in the HSS (High-Speed Service) queue, enter:

OLI

To purge a job from the queue, enter:

OPU Lxxx

To purge a selective report within a job from the queue, enter:

OPU Lxxxacrc

where: Lxxx = Job ID
ac = Activity code
rc = Report code

NOTE: REMOTE files reside in Foreground, in an area called the Batch Output Library, for a period of about 32 hours.

SUMMARY OF REPORT CODES AND DIRECTIVES FOR PRINTING OUTPUT

The following summary applies to the Load and Generation Model Programs, the Data Preparation Program, and the Generation Planning Program.

Report Code	Description	Directive
$$	Accounting report	BLIST Lxxxacrc;B,L Lxxx = Job number ac = Activity code rc = Report code B = Suppress blanks L = Suppress line numbers
06	Namelist errors	Use BEDIT directives (Refer to Scanning the Output section)
06	Bulk output	Use high-speed printer
07	Summary output	BLIST Lxxxacrc;L,W85 W85 = Width of line is 85 characters
10	Summary output (Generation Planning Program only)	BLIST Lxxxacrc;L,W85
12	BCREATE output	BLIST Lxxxacrc;B,L
36	Background catalog	BLIST Lxxxacrc;B,L

BACKGROUND PERMANENT DISC FILES

Data may be written on a permanent disc file and subsequently accessed in the same activity, in a later activity or in a later job. The data resides in Background, in a permanent file until purged by the user.

There is a Background storage charge of $0.15 per Data Storage Unit (DSU) per month. A Data Storage Unit is defined as 320 words. Any portion of a DSU used for storage is charged at the full DSU rate.

A. Before you may access a permanent disc file, you must first create file space.

A Load Model file requires about 4 blocks per year. A Generation Model file requires about 12 blocks per each record defined in the Generation Model.

The BCREATE directive may be included as part of the Background directives of a Foreground data file, or BCREATE may be entered interactively.

```
BCR FILEA;SIZE(1,XX)
```

FILEA of filename assigned by the user
Maximum of 8 characters

SIZE(1,XX), where XX is maximum blocks of 320 words to be reserved. You will be charged for actual storage used, and not for maximum storage reserved.

OR

```
BACK
ENTER DIRECTIVES
01 BCR FILEA;SIZE(1,100)
02 BEN
JOB ID = LA13
```

You may create file space only once.

An FS abort will occur if you attempt to create a background file that already exists.

B. If you did not create file space for a Background file that will be written into, only the $$ report will be available, and the following message will print at the end of the $$ report.

INCORRECT CAT/FILE DESCRIPTION AT OUTPUT ..02

BACKGROUND PERMANENT DISC FILES (Continued)

C. If you did not create enough blocks for successful program execution, the following abort will occur:

```
ABT 01/S-GR

ABORTED BY GFRC ROUTINE GF275 CODE 01 FILE CODE XX
```

You may increase the maximum storage by executing a FILSYS ACTIVITY

```
100 BRU *
110 BEN
120 ##NORM
130 $:FILSYS
140 FMOD AQ43XXX/FILEA,BLOCKS/120/
```

OR

You may purge the file from Background and create file space once again.

```
BPU FILEA
BCR FILEA;SIZE(1,120)
```

D. A BCATALOG will give a catalog of your Background permanent disc files. This is done by entering the following:

```
BACK
ENTER DIRECTIVES
01 BCA;
02 BEN
```

The system will respond with a job number.

```
JOB ID - LS33
```

Subsequently, print 36 report

```
BLIST LS330136;B,L
```

B Suppress blanks
L Suppress lines

E. To purge a permanent disc file, enter

```
BACK
ENTER DIRECTIVES
01 BPU FILEA
02 BCA;
03 BEN
```

0 0 2 5 1 7

PROGRAM LIMITS

As a means of having the latest OGP program limits available at all times, the Foreground file EUSED* may be accessed. It is listed on the following page.

Each time you run an OGP program, you should sign on your User ID and enter:

```
OLD EUSED*

READY                          (System response)

EDI LIS 10010
```

If the last revised date does not correspond with the date of your last listing of file EUSED*, you should list the entire file, note the changes and modify your LIMITS JCL accordingly.

```
LIST EUSED◆

EUSED◆       14:17EST     03/31/83

10000◆
10010◆      FILE EUSED◆      LAST REVISED 11/24/82
10020◆
10030◆      INFORMATION FILE FOR MARK III USERS OF DGP/FSP PROGRAMS
10040◆      WRITTEN BY EUSED, GENERAL ELECTRIC CO., SCHENECTADY, NY
10050◆
10060◆      DATE OF LAST
10070◆      REVISION            PROGRAM          LIMITS
10080◆      ------------        -------          ------
10090◆
10100◆      11/24/82            .GNMD3           02,18K,,10K
10110◆      11/24/82            .GNMD6           02,25K,,10K
10120◆
10130◆      11/24/82            .LDMD3           02,25K,,15K
10140◆      11/24/82            .LDMD6           02,32K,,15K
10150◆
10160◆      11/24/82            .GP5DP           02,62K,,10K
10170◆      11/24/82            .GP5GP           50,65K,8K,20K
10180◆
10190◆      11/24/82            .GP5AD           02,65K,,10K
10200◆      11/24/82            .GP5AG           50,79K,8K,15K
10210◆
10220◆      11/24/82            .GP6DP           02,70K,,10K
10230◆      11/24/82            .GP6GP           50,72K,8K,20K
10240◆
10250◆      11/24/82            .GP6AD           02,75K,,10K
10260◆      11/24/82            .GP6AG           50,89K,8K,20K
10270◆
10280◆      11/24/82            .DPFSP           02,30K,,10K
10290◆
10320◆      11/24/82            .FSP6            05,60K,,10K
10330◆
10340◆                          TERMINAL MESSAGE
10350◆      TYPE OF ABORT       RESPONSE TO QUERY      $$ REPORT
10360◆      -------------       -----------------      ---------
10370◆
10380◆      PROCESSOR TIME      ABT 01/G-005           I8 RUN TIME EXHAUSTED
10390◆
10400◆                                                 1. EXAMINE OUTPUT FOR POSSIBLE
10410◆                                                    DATA ERROR WHICH MAY HAVE
10420◆                                                    CAUSED PROGRAM TO LOOP
10430◆                                                 2. IF MANY OPTIONS USED, MAY
10440◆                                                    HAVE TO INCREASE PROCESSOR
10450◆                                                    TIME LIMITS
10460◆                                                 3. IF IN DOUBT, CALL EUSED
10470◆
10480◆      CORE LIMITS         ABT 01/G-052           M4/N4-I/O LIM.
10490◆
10500◆                                                 1. LIST EUSED◆ FOR LATEST
10510◆                                                    REVISION
10520◆                                                    INCREASE CORE LIMITS
10530◆
10540◆      LINES OF OUTPUT     ABT 01/G-077           >0 OUTPUT LINES EXCEEDED
10550◆
10560◆                                                 1. INCREASE LINES OF OUTPUT
10570◆                                                    LIMITS
10580◆
```

REFERENCE MANUALS

Additional information is available in the following manuals, which may be obtained from your GEISCO representative:

MARK III GCOS Background User's Guide--2000.01

Illustrates Background job setup, submission, and processing. Describes the Foreground Interface to GCOS Background and provides instructions for editing the output returned to the Batch Output Library via BEDIT.

Command System Reference Manual--3501.01

Introduction to the Foreground system, instructions in the use of system commands, listing of system error messages and their causes, and descriptions of TEDIT and EDIT, which are useful in changing files.

Honeywell Level 66 Error Messages and Abort Codes--DC97A

Abort codes, error codes, and error messages that may be issued to a user as a result of abnormal conditions detected during activity processing.

LOAD MODEL PROGRAM (.LDMD6)

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INTRODUCTION

The .LDMD6 Load Model Program is an auxiliary program to OGP. It must be executed in order to develop a binary Load Model, which is stored permanently and will be input to the OGP program. Although OGP may study a maximum of 30 consecutive years, the Load Model may include up to 40 years of load data. Figure 3-1 shows the various files used by the Load Model Program.

The .LDMD6 program is used either to create a Load Model from scratch or to modify an existing Load Model. Figure 3-2 shows the flow of logic in the Load Modeling Program.

If the Load Modeling Program is being used to create a Load Model from scratch, the user must input the following:

- Per-unit data describing the probability and production cost load shapes for one or more study years
- Annual MW peak loads for all of the study years
- Company identifications (maximum of 25 companies)

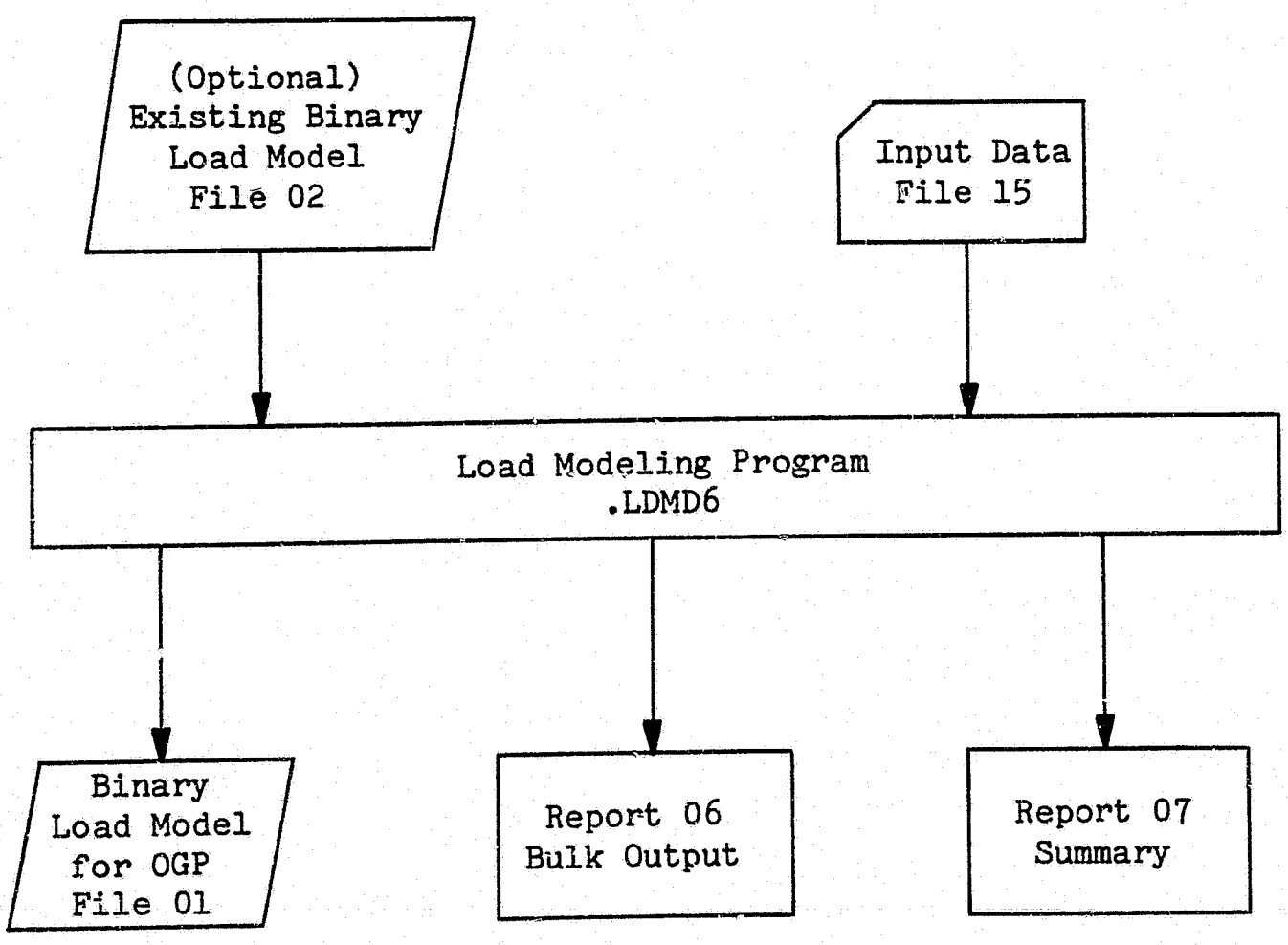

Figure 3-1. File Structure for the Load Model Program (.LDMD6)

INTRODUCTION

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- Annual MW peak loads for all of the study years
- Company identifications (maximum of 25 companies)

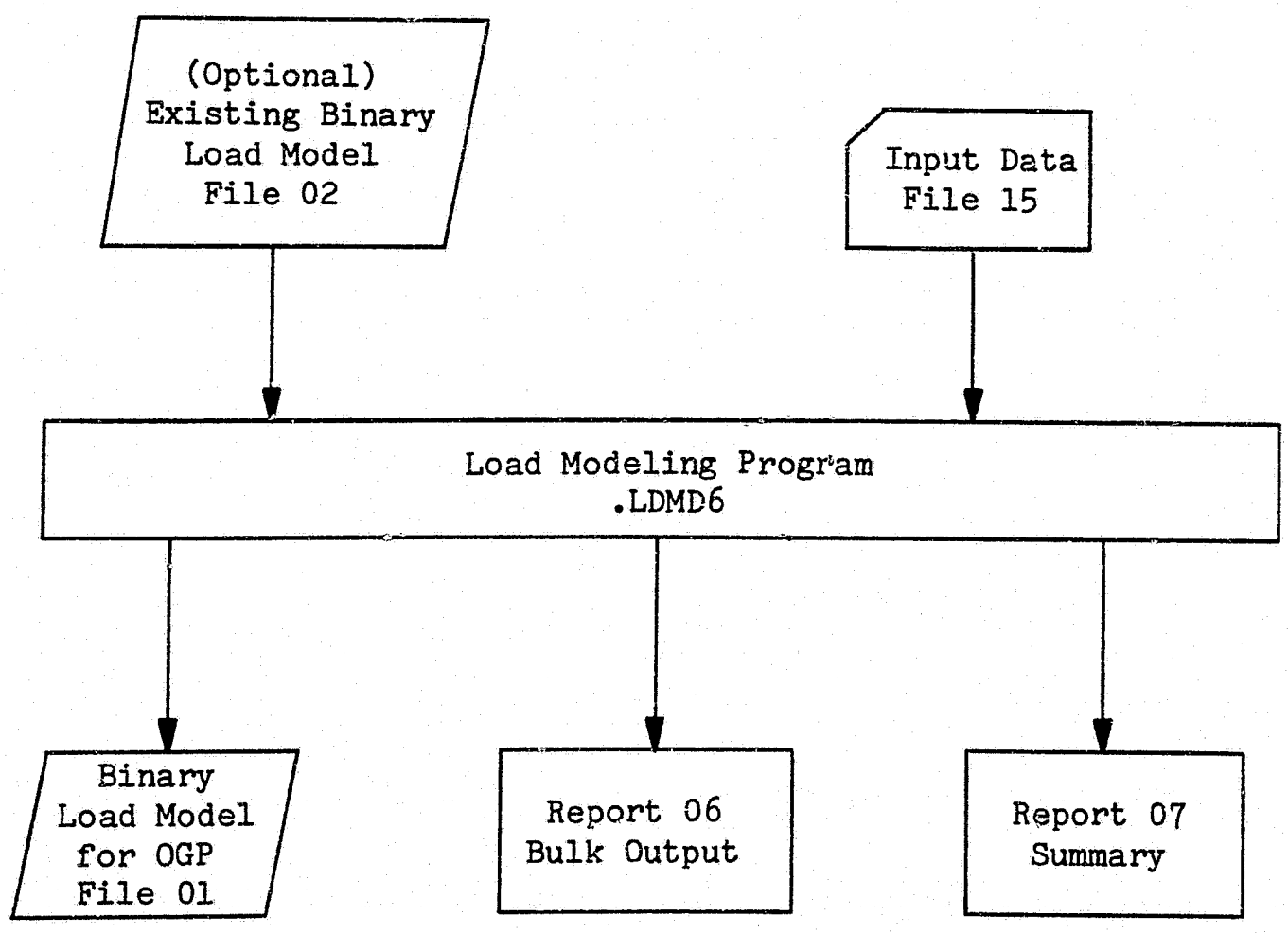

Figure 3-1. File Structure for the Load Model Program (.LDMD6)

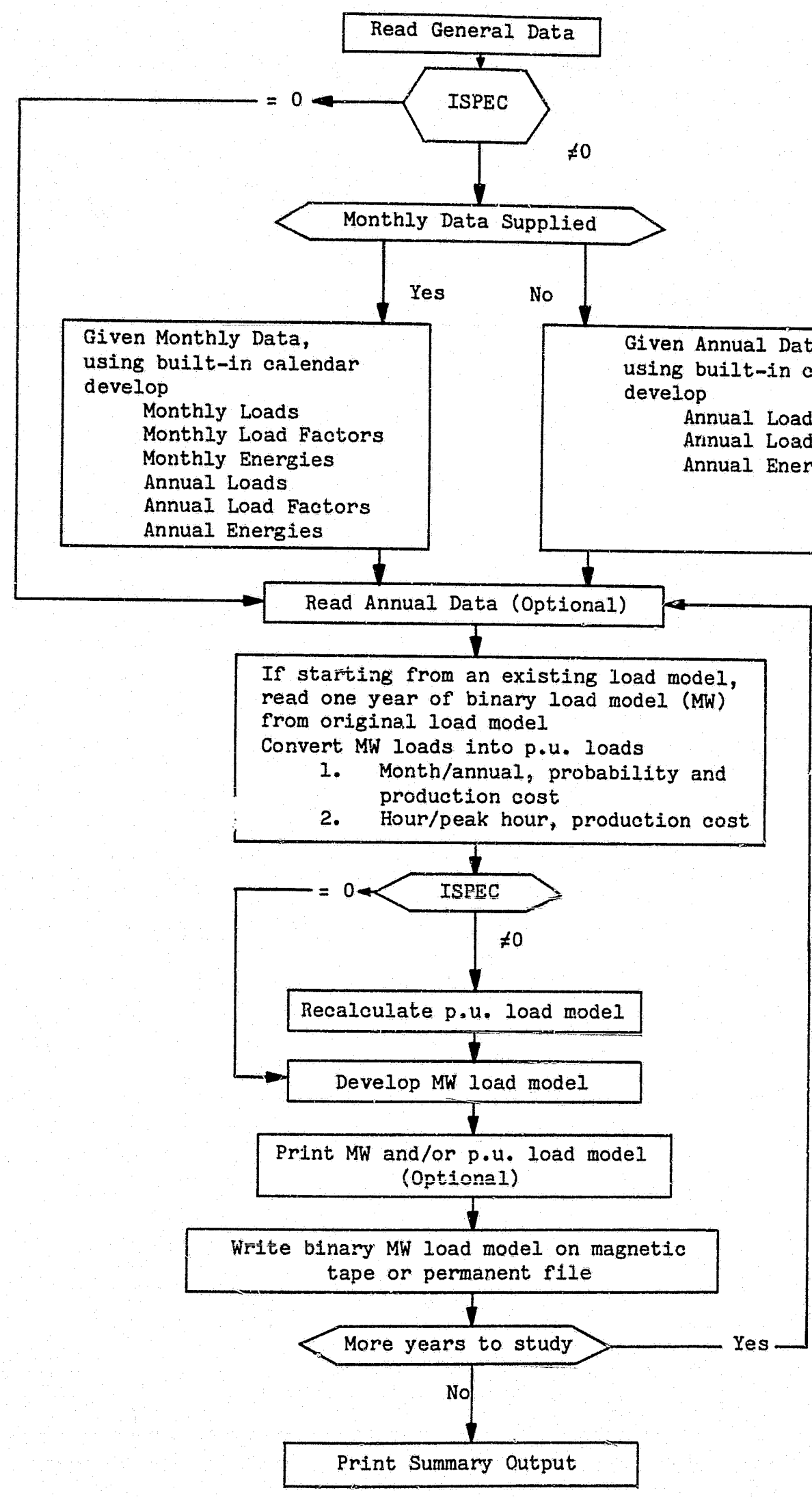

Figure 3-2. Logic Flow of OGP Load Model Program

Optional input includes:

- Monthly MW peak loads
- Monthly or annual energies
- Monthly or annual load factors

If the optional input is supplied, the program will adjust the per-unit load shapes that were input so that the peaks, energies, and load factors are consistent with respect to each other. The method used by the program in making this adjustment is described in Section 4 of the Descriptive Handbook and on pages 3-56 and 3-57 of this manual.

Using an existing Load Model as a base, the Load Modeling Program can be used to modify the load data and create a new Load Model. The original Load Model will not be altered by this procedure. The following modifications may be made:

a. Change monthly p.u. loads for probability calculations by inputting the following information:

   1) Month/annual peak load ratios

   2) P.U. ratios associated with the 0, 20, 40, and 100 percent points on the peak load duration curve

b. Change monthly p.u. loads for production cost calculations by inputting the following information:

   1) Month/annual peak load ratios

   2) Weekday hour/peak hour load ratios

   3) Weekend day hour/peak hour load ratios

c. Direct the program to alter p.u. load shapes by inputting:

   1) Monthly energies, load factors, month/annual peak load ratios, and monthly peaks

   2) Annual energies, load factors, and annual peaks

d. Extend the existing Load Model by doing either of the following:

   1) Starting the new Load Model before the first year of the existing model

   2) Continuing the new Load Model after the last year of the existing model

   NOTE: Items 1) and 2) may not be done in the same run.

To change the binary Load Model, the user must usually rerun the .LDMD6 program. However, there is one exception. If the user wishes to alter only the annual MW pool peaks, input to the Data Preparation Program of OGP will allow the annual peaks to be overridden for that case study only. All annual peaks or selective annual peaks may be changed.

PROGRAM INPUT/OUTPUT

The .LDMD6 program (see Figure 3-1) is a batch program written in FORTRAN. Input requirements for this program are as follows:

1. Data is supplied in the form of NAMELIST data. The NAMELIST name is INPUT. The program requires one set of general data. Optional sets of data can be input on an annual basis to override information that was supplied in the general data. File 15 is designated as the input data file.

2. If the user is modifying an existing Load Model, the existing Load Model in binary form is required as input. File 02 is designated as the input Load Model.

Output capabilities of the Load Model Program (see Figure 3-1) are as follows:

1. File 01 is a binary Load Model which defines the monthly MW probability and production cost loads for each year to be studied. This binary Load Model will become input to the Data Preparation module of the OGP program.

2. Report 06 is bulk output. It is usually printed on a high-speed printer and is an annual printout of the monthly MW and/or p.u. probability and production cost load models. The user may control the annual printing of these MW and p.u. models through input. System abort messages and all programmed error messages are written to Report 06.

3. Report 07 is summary output. It is usually printed via a terminal or CRT. It is a track of successful NAMELIST data reads and a summary of annual MW peak loads and annual MWh of energy. Selective programmed error messages are written to Report 07. Report 07 provides the user with verification of the successful execution of the run.

LOAD MODEL PROGRAM INPUT DATA

This section defines the actual NAMELIST input variables to be used with the Load Model Program. The variables to be used depend on the program options being utilized. The list on page 3-7 indicates the variables required when creating a Load Model from scratch. If an existing Load Model is being modified, the user should use the Section Index to determine, based on the changes to be made, the variables to use.

Below is an alphabetic listing of the NAMELIST input variables for the Load Model Program and the page where they are located. Some of the variables have a dimension of 40, thus allowing the user to input values for all the years to be studied. Other variables allow only one value to be input. If this value is to be changed during the study period, the user must override it by using annual input. The variables that can be overridden on an annual basis are indicated with an asterisk (*). The paragraph on the following page explains how annual overrides are input.

ALPHABETIC LISTING OF INPUT VARIABLES

Variable	Page	Variable	Page
AEMWH	3-47, 3-48	NEWR	3-11, 3-12
*CGROW	3-50	NEWWE	3-14, 3-19
COMW	3-50, 3-51	NEWWK	3-14, 3-15
*CRATIO	3-50	NSTART	3-8
EMGROW	3-26, 3-27, 3-33	NTOTAL	3-8
EMONTH	3-26, 3-27, 3-29	*NUMWE	3-52
ENERGY	3-26, 3-27, 3-32	*NUMWK	3-52
FMONTH	3-26, 3-27, 3-36	*MOD	3-24, 3-49
GRMW	3-10, 3-27, 3-46, 3-47, 3-48	*MODMON	3-24, 3-49
		*MODPK	3-24, 3-49
GRMWH	3-23, 3-47, 3-48	*MODPRB	3-24, 3-46, 3-49
*ID1	3-8	*MODR	3-11, 3-12
*ID2	3-8	*MODWEK	3-14, 3-15
ISPEC	3-9, 3-25, 3-56, 3-57	*MODWEN	3-14, 3-19
		*MODWK	3-24, 3-46, 3-49
*IYREAD	3-53	PMGROW	3-27, 3-28, 3-43
KALEND	3-52	PMONTH	3-26, 3-27, 3-28, 3-39
KPRINT	3-53		
LPRINT	3-53	POOLMW	3-10, 3-27, 3-46, 3-47, 3-48
M7	3-53		
NEW	3-8	*PUANP	3-14, 3-15
NEWANP	3-10	*PUANR	3-11, 3-12
NEWC	3-8	*PUMON	3-24, 3-26, 3-27, 3-49
NEWMOP	3-14, 3-15		
		*PUMR	3-11, 3-13
NEWMOR	3-11, 3-12	*PUMWE	3-14, 3-20
NEWNUM	3-8	*PUMWK	3-14, 3-16
NEWP	3-8	XLF	3-23, 3-47, 3-48

* This variable can be overridden on an annual basis.

The NAMELIST input data begins with a NAMELIST input data set containing the general data. All of the variables input to the Load Model are supplied in the general data. In addition, many of these (see list on page 3-5) can be overridden on an annual basis. This allows the user to change the values assigned to variables as a function of time. The variable IYREAD tells the Load Model Program the year in which the changes specified by the next NAMELIST data set become effective. These changes remain in effect until they are overridden by changes made later in the data file. The effective years of the changes must occur sequentially in the data file.

The following is an example of the format of a NAMELIST input data file for the Load Model Program:

$INPUT	Each NAMELIST data set must begin with $INPUT and end with a closing $.
General Data	(See pages 3-8 to 3-53.)
IYREAD=1986$	Year in which the changes specified in the next data set become effective.
$INPUT	
Override Data	Changes to general data to become effective in 1986 (see list on page 3-5 for variables that can be overridden).
IYREAD=1987$	
$INPUT	
Override Data	Changes to become effective in 1987.
IYREAD=1990$	
$INPUT	
Override Data	Changes to become effective in 1990.
IYREAD=0$	End of annual overrides.

To create a new Load Model from scratch, the user must input the following data:

	ISPEC=0	ANNUAL ISPEC=1	ISPEC=-1
	ID1	POOLMW	POOLMW	XLF
	ID2	* GRMW	GRMW	GRMWH
	NTOTAL		XLF	MOD
	NSTART		AEMWH	MODWK
	NEW		GRMWH	MODPK
	NEWNUM		MOD	MODMON
	NEWP		MODWK	** PUMON
	NEWC		MODPK	* MODPRB
**	IYREAD		MODMON	
*	LPRINT		** PUMON	
*	KPRINT		* MODPRB	
	M7			
**	CRATIO			
**	CGROW		MONTHLY	
*	COMW		ISPEC=1	
	PUANR			
	PUMR		EMONTH	
	PUANP		EMGROW	
	PUMWK		ENERGY	
	PUMWE		FMONTH	
**	KALEND		PMONTH	
**	NUMWK		PUMON	
**	NUMWE		POOLMW	
			GRMW	
			MODWK	
			MODPRB	

* Optional input
** Optional input; data may also be input on annual basis

NOTE: Whenever growth multipliers are input, the program multiplies last year's value by this year's multiplier to determine this year's values. For example, POOLMW(N) = POOLMW(N-1) * GRMW(N).

GENERAL INPUT

```
$INPUT
ID1 =      '_____',
ID2 =      '_____',
or
ID1 = 60H  _____,
ID2 = 60H  _____,
```

2 lines of identification
Maximum of 60 characters per line

NTOTAL = _____, Number of years to be included on the Load Model
NTOTAL ≤ 40.

If NTOTAL > number of years on original Load Model, refer to page 3-54.

NSTART = _____, First year of Load Model to write on new file.
If omitted, program will start with first year on old file.
If NSTART < first year on original Load Model, please turn to page 3-54.

NEW = _____, Option to create Load Model from scratch.
0 = Modify existing Load Model.
1 = Create new Load Model from scratch.
Refer to page 3-7.

NEWNUM = _____, Number of companies in pool.
NEWNUM ≤ 40
Mandatory input if:
1. Load Model is created from scratch.
2. Number of companies described in new Load Model differs from number of companies in original Load Model.

NEWP = 6H _____, Hollerith identification of pool, 6 characters maximum.

or
NEWP = '_____', Mandatory input if:
1. Load Model is created from scratch.
2. User wishes to change pool name.

```
NEWC =     '_____',
           '_____',

or
NEWC = 60H _____,
       60H _____,
        :
```

List of company names.
Hollerith identification, 6 characters per company.
Mandatory input if:
1. Load Model is created from scratch.
2. User wishes to change company names.

PROGRAM LOGIC CODE

The variable ISPEC tells the program the type of data to expect and whether or not the program is to automatically alter the load shapes. If the load shapes are being modified, the program will use the method described on pages 3-56 and 3-57. Listed below are the three possible options for ISPEC.

ISPEC = _____, 0 = Do not automatically alter load shapes.
The user will specifically input all changes to the load shapes.

Please refer to pages 3-10 through 3-22.

-1 = The program will use annual pool MW loads from the original Load Model.

The user will input the desired load factor for the first year and the MWh growth rate for all years.
OR
The user will input the desired load factors for all of the years.

Given the above input, the program will alter load shapes accordingly.

Please refer to pages 3-23 and 3-24.

+1 = The user will input a combination of annual pool MW loads, energies and load factors.
OR
The user will input a combination of monthly MW loads, energies and load factors.

Given the above input, the program will alter load shapes accordingly.

If inputting monthly data, please refer to pages 3-25 through 3-46.

If inputting annual data, please refer to pages 3-47 through 3-49.

If the Load Model is being created from scratch, regardless of ISPEC input, the user must supply the following input:

PUANR	Page 3-11, 3-12
PUMR	3-11, 3-13
PUANP	3-14, 3-15
PUMWK	3-14, 3-16
PUMWE	3-14, 3-20

ISPEC = 0 MODE

OPTIONS TO CHANGE ANNUAL POOL PEAK LOADS (ISPEC = 0)

NEWANP(40) Code to change annual peaks, by year.
0 = Use annual pool MW loads from original Load Model.
1 = New annual pool MW loads will be input.
Associated input: POOLMW
GRMW

POOLMW(40) Annual pool peak load in MW, by year.

GRMW(40) Annual pool peak growth multiplier, by year.
e.g., 1.05 for 5% growth.
List initialized to 1.0.
(See Note on page 3-7.)

NEWANP = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

POOLMW = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

GRMW = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

OPTIONS TO CHANGE RELIABILITY P.U. DATA (ISPEC = 0)

1. NEWMOR(40) — Code to change month/annual ratios, by year.
0 = Use original Load Model ratios.
1 = New month/annual ratios will be input.
Associated input: PUANR

PUANR(12) — P.U. month/annual ratio, by month.
(Must input 12 numbers.)
Must be included in the annual override data for the first year it becomes effective.

2. NEWR(40) — Code to change ratios at the 0, 20, 40, and 100 percent points, by year.

NOTE: Four points refer to percent of weekdays when a load equal to or greater than amount shown may be expected.

0 = Use original Load Model ratios.
1 = New p.u. ratios will be input.
Associated input: MODR
PUMR

MODR(12) — Code to supply PUMR input selectively on a month-by-month basis.
0 = Use original Load Model ratios.
1 = PUMR input will be supplied.

PUMR(4,12) — P.U. load ratios associated with the 0, 20, 40, and 100 percent points on peak load duration curve, by month.
Mandatory input if NEW=1.
Mandatory for months where NEWR(YEAR INDEX)=1, and MODR(MONTH)=1.

NOTE: Four points refer to percent of weekdays when a load equal to or greater than amount shown may be expected.

Data forms for these variables are on pages 3-12 and 3-13.

OPTIONS TO CHANGE RELIABILITY P.U. DATA (ISPEC = 0) (Continued)

NEWMOR = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

PUANR = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

NEWR = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MODR = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

OPTIONS TO CHANGE RELIABILITY P.U. DATA (ISPEC = 0) (Continued)

January

PUMR(1,1) = _____,
_____,
_____,
_____,

February

PUMR(1,2) = _____,
_____,
_____,
_____,

March

PUMR(1,3) = _____,
_____,
_____,
_____,

April

PUMR(1,4) = _____,
_____,
_____,
_____,

May

PUMR(1,5) = _____,
_____,
_____,
_____,

June

PUMR(1,6) = _____,
_____,
_____,
_____,

July

PUMR(1,7) = _____,
_____,
_____,
_____,

August

PUMR(1,8) = _____,
_____,
_____,
_____,

September

PUMR(1,9) = _____,
_____,
_____,
_____,

October

PUMR(1,10) = _____,
_____,
_____,
_____,

November

PUMR(1,11) = _____,
_____,
_____,
_____,

December

PUMR(1,12) = _____,
_____,
_____,
_____,

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0)

1. NEWMOP(40) — Code to change month/annual ratios, by year.
0 = Use original Load Model ratios.
1 = New month/annual ratios will be input.
Associated input: PUANP

PUANP(12) — P.U. month/annual ratio, by month.
(Must input 12 numbers.)

2. NEWWK(40) — Code to change weekday hour/peak hour ratios, by year.
0 = Use original Load Model ratios.
1 = New weekday hour/peak hour ratios will be input.
Associated input: MODWEK
PUMWK

MODWEK(12) — Code to supply PUMWK input selectively on a monthly basis.
0 = Use original Load Model ratios.
1 = PUMWK input will be supplied.

PUMWK(24,12) (24 = Hour, 12 = Month) — Weekday p.u. hourly ratios, by hour, by month.
24 p.u. loads must be in descending order.

3. NEWWE(40) — Code to change weekend hour/peak hour ratio, by year.
0 = Use original Load Model ratios.
1 = New weekend hour/peak hour ratios will be input.
Associated input: MODWEN
PUMWE

MODWEN(12) — Code to supply PUMWE input selectively on a monthly basis.
0 = Use original Load Model ratios.
1 = PUMWE input will be supplied.

PUMWE(24,12) (24 = Hour, 12 = Month) — Weekend p.u. hourly ratios, by hour, by month.
24 p.u. loads must be in descending order.

Data forms for these variables are on pages 3-15 through 3-22.

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

NEWMOP = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

PUANP = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

NEWWK = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MODWEK = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

January

PUMWK(1,1) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

February

PUMWK(1,2) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

March

PUMWK(1,3) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

April

PUMWK(1,4) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

May

PUMWK(1,5) =

June

PUMWK(1,6) =

July

PUMWK(1,7) =

August

PUMWK(1,8) =

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

September

PUMWK(1,9) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

October

PUMWK(1,10) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

November

PUMWK(1,11) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

December

PUMWK(1,12) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

NEWWE =

_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,

MODWEN =

_____,	_____,
_____,	_____,
_____,	_____,
_____,	_____,
_____,	_____,
_____,	_____,

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

January

PUMWE(1,1) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

February

PUMWE(1,2) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

March

PUMWE(1,3) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

April

PUMWE(1,4) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

May

PUMWE(1,5) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

June

PUMWE(1,6) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

July

PUMWE(1,7) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

August

PUMWE(1,8) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

OPTIONS TO CHANGE PRODUCTION COST P.U. DATA (ISPEC = 0) (Continued)

September

PUMWE(1,9) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

October

PUMWE(1,10) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

November

PUMWE(1,11) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

December

PUMWE(1,12) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

If ISPEC=0, proceed to page 3-50.

0 0 2 5 1

ISPEC = -1 MODE

When ISPEC=-1, the program will read the annual pool peaks from the original Load Model, and, using an internal calendar, will automatically alter the p.u. load shapes to match the energies or load factors input by the user. The method used to alter the load shapes will be specified on the following page and is explained on pages 3-56 and 3-57 of this manual and Section 4 of the Descriptive Handbook.

The user must input one of the following items:

1. Annual load factors

2. Annual load factor for the first year of study and energy growth multipliers for all years

---

XLF(40) Desired annual load factors for each year.
e.g., .60 for 60% annual load factor.

GRMWH(40) Annual energy growth multipliers for each year.
e.g., 1.04 for 4% growth.
List is initialized to 1.0.

XLF = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

GRMWH = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

ISPEC = -1 MODE (Continued)

MOD — Load shape modification code.
0 = Modify daily shapes (see page 3-56).
1 = Modify monthly/annual ratios (see page 3-57).
2 = Manually input new month/annual ratios, then modify daily shapes.

MODWK — Week modification code.
0 = Modify all days in week.
1 = Modify weekdays only.
2 = Modify weekend days only.

MODMON(12) — Month modification code, by month.
0 = No modifications in month.
1 = Modify month.
Initialized to 1.

PUMON(12) — Month/annual peak ratios, p.u.
Mandatory input if MOD=2.

MODPRB — Probability model modification code.
0 = Modify month/annual ratios.
Program will set probability month/annual ratios equal to production cost month/annual ratios.
1 = Do not modify original month/annual ratios on probability model.

MODPK — Option to change annual pool peak in the event of a flat monthly load shape.
0 = Retain desired annual peak.
1 = Modify desired annual peak.

NOTE: If modifications to the Load Model result in flat loads, the annual peak, energy, and/or load factor may not match the input values.

MOD = _____,

MODWK = _____,

MODPRB = _____,

MODPK = _____,

MODMON = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

PUMON = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

If ISPEC=-1, proceed to page 3-50.

ISPEC = 1 MODE

When ISPEC=1, the user must input on either a monthly or annual basis two of the following three items: peak load, energy, and load factor. Using an internal calendar, the program will automatically alter the p.u. load shapes on the original Load Model to match the peak loads, energies, and load factors. The method used to alter the load shapes will be specified on the following pages and is explained on pages 3-56 and 3-57 of this manual and in Section 4 of the Descriptive Handbook.

If <u>monthly</u> input is to be supplied, please proceed to page 3-26.

If <u>annual</u> input is to be supplied, please proceed to page 3-47.

MONTHLY INPUT (ISPEC = 1)

Using an internal calendar and the monthly energies, monthly load factors and monthly loads that are input, the program will alter the original p.u. load shape.

The user must input two of the following three sets of data. (The program will develop the third set of data.)

1. Desired monthly energies, MWh, for each year.
2. Desired monthly load factor, p.u., for each year.
3. Desired monthly loads, MW or p.u., for each year.

Monthly Energies

EMONTH(40,12) Desired monthly energies, MWh, by year, by month.

ENERGY(12) Desired monthly energy, MWh, for each month. May use as replacement for EMONTH if energy for first year only and monthly energy growth multipliers are supplied.

EMGROW(40,12) Monthly energy growth multipliers, by year, by month.
e.g., 1.06 for 6% energy growth over same month of preceding year.
Initialized to 1.0.
(See note on page 3-7.)

Monthly Load Factor

FMONTH(40,12) Desired monthly load factors, p.u., by year, by month.
e.g., .75 for 75% monthly load factor.

Monthly Peak Loads

PMONTH(40,12) Desired monthly loads, MW or p.u., by year, by month.
If input $\leq$ 1.0, value is in p.u. and user must also input annual peaks in MW.

PUMON(12) Desired monthly loads, MW or p.u., for each month.
PUMON $\leq$ 1.0 p.u.
PUMON $>$ 1.0 MW
May use as replacement for PMONTH if month/annual ratios are same for all years of study.
OR
May use as replacement for PMONTH if MW loads for first year only and monthly MW growth multipliers are supplied.

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Peak Loads (Continued)

PMGROW(40,12) Monthly load growth multipliers, by year, by month.
e.g., 1.06 for 6% monthly load growth over same month of preceding year.
Initialized to 1.0.

POOLMW(40) Annual pool peaks, MW, by year.

GRMW(40) Annual pool peak growth multiplier, by year.
e.g., 1.05 for 5% annual growth.
Initialized to 1.0.
(See note on page 3-7.)

If the monthly loads were input in p.u., the user must input POOLMW and/or GRMW.

Valid Combinations of Monthly Input

The user must supply two of the following three sets of input data:

Energy

Desired monthly energies, MWh, for all years [EMONTH(40,12)].

OR

Desired monthly energies, MWh, first year of study [EMONTH(1,12) or ENERGY(12)] and

Monthly energy growth multipliers for all years [EMGROW(40,12)].

Load Factor

Desired monthly load factors, p.u., for all years [FMONTH(40,12)].

MONTHLY INPUT (ISPEC = 1) (Continued)

Peak Load

Desired monthly loads in p.u. of annual peak, for all years [PUMON(12) or PMONTH(40,12)] and

Annual pool peaks, MW, for all years [POOLMW(40)] or annual pool peak, MW, for first year and annual pool peak growth multipliers for all years [POOLMW(1) and GRMW(40)].

OR

Desired monthly loads, MW, for all years [PMONTH(40,12)] and

Omit annual pool peaks for all years.

OR

Desired monthly loads, MW, for first year [PMONTH(1,12)] and

Monthly MW growth multipliers for all years [PMGROW(40,12)].

Data forms for these variables are on pages 3-29 through 3-46.

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Energies (MWh)

January

EMONTH(1,1) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

February

EMONTH(1,2) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

March

EMONTH(1,3) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

April

EMONTH(1,4) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Energies (MWh) (Continued)

May

EMONTH(1,5) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

June

EMONTH(1,6) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

July

EMONTH(1,7) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

August

EMONTH(1,8) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Energies (MWh) (Continued)

September

EMONTH(1,9) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

October

EMONTH(1,10) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

November

EMONTH(1,11) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

December

EMONTH(1,12) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Energies (MWh) (Continued)

ENERGY = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

If ENERGY is used, the user must supply EMGROW data which appears on the following three pages.

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Energy Growth Multipliers (Continued)

May

EMGROW(1,5) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

June

EMGROW(1,6) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

July

EMGROW(1,7) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

August

EMGROW(1,8) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Energy Growth Multipliers (Continued)

September

EMGROW(1,9) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

October

EMGROW(1,10) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

November

EMGROW(1,11) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

December

EMGROW(1,12) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Load Factors (P.U.)

January

FMONTH(1,1) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

February

FMONTH(1,2) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

March

FMONTH(1,3) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

April

FMONTH(1,4) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Load Factors (P.U.) (Continued)

May

FMONTH(1,5) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

June

FMONTH(1,6) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

July

FMONTH(1,7) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

August

FMONTH(1,8) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Load Factors (P.U.) (Continued)

September

FMONTH(1,9) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

October

FMONTH(1,10) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

November

FMONTH(1,11) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

December

FMONTH(1,12) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Loads (MW or P.U.)

If the monthly loads are input in p.u., the user must also input the annual peak loads using POOLMW and/or GRMW (see page 3-46).

January

PMONTH(1,1) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Loads (MW or P.U.) (Continued)

May

PMONTH(1,5) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

June

PMONTH(1,6) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

July

PMONTH(1,7) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

August

PMONTH(1,8) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Loads (MW or P.U.) (Continued)

September

PMONTH(1,9) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

October

PMONTH(1,10) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

November

PMONTH(1,11) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

December

PMONTH(1,12) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Loads (MW or P.U.) (Continued)

PUMON = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

If PUMON $\leq$ 1.0, the program will interpret the value as a p.u. of the annual peak and will assume that the p.u. multipliers are the same for all years of the study. The program will set

PMONTH(N,1)=PUMON(1) January, for N=1 to NTOTAL
PMONTH(N,2)=PUMON(2) February
.
.
.
.
PMONTH(N,12)=PUMON(12) December

If PUMON > 1.0, the program will interpret the value as the MW peak and will set the following for the first year of the study only. The user must also supply PMGROW data.

PMONTH(1,1)=PUMON(1) January
PMONTH(1,2)=PUMON(2) February
.
.
.
.
PMONTH(1,12)=PUMON(12) December

PUMON must be input as general data only. If it is supplied as annual data, the program will read the data but will not use it.

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Load Growth Multipliers

January

PMGROW(1,1) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

February

PMGROW(1,2) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

March

PMGROW(1,3) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

April

PMGROW(1,4) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Load Growth Multipliers (Continued)

May

PMGROW(1,5) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____

June

PMGROW(1,6) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____

July

PMGROW(1,7) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____

August

PMGROW(1,8) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____

MONTHLY INPUT (ISPEC = 1) (Continued)

Monthly Load Growth Multipliers (Continued)

September

PMGROW(1,9) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

October

PMGROW(1,10) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

November

PMGROW(1,11) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

December

PMGROW(1,12) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

MONTHLY INPUT (ISPEC = 1) (Continued)

Annual Loads

POOLMW = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

GRMW = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

Monthly Modifications

MODWK = _____, Week modification code.
0 = Modify all days in week.
1 = Modify weekdays only.
2 = Modify weekend days only.

MODPRB = _____, Probability model modification code.
0 = Modify month/annual ratios.
Program will set probability month/annual ratios equal to production cost month/annual ratios that were input with PUMON.
1 = Do not modify original probability month/annual ratios.

If ISPEC=1 and monthly input was supplied, please proceed to page 3-50.

ANNUAL INPUT (ISPEC = 1)

Using an internal calendar and the annual loads, energies and load factors that are input, the program will alter the original p.u. load shape. The user must input a combination of the following:

POOLMW(40)	Annual pool peak load, MW, by year.
GRMW(40)	Annual pool peak growth multiplier, by year. e.g., 1.05 for 5% growth. Initialized to 1.0.
XLF(40)	Annual load factor by year. e.g., 0.60 for 60% load factor.
AEMWH	Energy, MWh, for first year of study.
GRMWH(40)	Annual energy growth multiplier, by year. e.g., 1.05 for 5% growth. Initialized to 1.0.

Valid combinations of input are listed below.

1. Desired annual pool peak, first year. Annual load growth multipliers, all years. Desired annual load factor, first year. Annual energy growth multipliers.	POOLMW(1) GRMW(40) XLF(1) GRMWH(40)
2. Desired annual pool peaks, all years. Desired annual load factors, all years.	POOLMW(40) XLF(40)
3. Desired annual pool peak, first year. Annual load growth multipliers, all years. Desired annual load factors, all years.	POOLMW(1) GRMW(40) XLF(40)
4. Desired load factors, all years. Desired annual energy, MWh, first year. Annual energy growth multipliers.	XLF(40) AEMWH GRMWH(40)
5. Desired annual pool peak, first year. Annual load growth multipliers, all years. Desired annual energy, MWh, first year. Annual energy growth multipliers.	POOLMW(1) GRMW(40) AEMWH GRMWH(40)

Data forms for these variables are on page 3-48.

ANNUAL INPUT (ISPEC = 1) (Continued)

AEMWH = _____,

POOLMW =	GRMW =	XLF =	GRMWH =
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,

ANNUAL INPUT (ISPEC = 1) (Continued)

MOD — Load shape modification code.
0 = Modify daily shapes (see page 3-56).
1 = Modify monthly/annual ratios (see page 3-57).
2 = Manually input new month/annual ratios, then modify daily shapes.

MODWK — Week modification code.
0 = Modify all days in week.
1 = Modify weekdays only.
2 = Modify weekend days only.

MODMON(12) — Month modification code, by month.
0 = No modifications in month.
1 = Modify month.
Initialized to 1.

PUMON(12) — Month/annual peak ratios, p.u.
Mandatory input if MOD=2.

MODPRB — Probability model modification code.
0 = Modify month/annual ratios.
Program will set probability month/annual ratios equal to production cost month/annual ratios.
1 = Do not modify original month/annual ratios.

MODPK — Option to change annual pool peak in the event of a flat monthly load shape.
0 = Retain desired annual peak.
1 = Modify desired annual peak.

NOTE: If modifications to the Load Model result in flat loads, the annual peak, energy, and/or load factor may not match the input values.

MOD = _____,

MODWK = _____,

MODPRB = _____,

MODPK = _____,

MODMON= _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

PUMON = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

COMPANY PEAK LOADS

If there is only one company represented on the Load Model, the program will set the annual company load equal to the annual pool load. If there is more than one company on the Load Model, data must be supplied to enable the program to calculate the peak load for each company. The following variables are used to input this data:

CRATIO(25)	P.U. ratio of company load to pool load, by company. (May change input on annual basis.)
CGROW(25)	Load growth multiplier, by company. (May change input on annual basis.) e.g., 1.05 for 5% growth. Initialized to zero.
COMW(40,25) (25 = Company, 40 = Year)	Annual MW load, by year, by company.

CRATIO or COMW are used to establish the company peaks for the first year on the Load Model. The program will use the following hierarchy to determine the company peaks for subsequent years:

1. Company/pool ratio
2. Load growth multiplier
3. MW loads
4. Default: If none of the above input is supplied, the program will use the annual company/pool ratio as determined by data read from the original Load Model.

CRATIO = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

CGROW = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

COMPANY PEAK LOADS (Continued)

Company 1

COMW(1,1) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

Company 2

COMW(1,2) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

Company 3

COMW(1,3) = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

.
.
.

MODIFYING THE INTERNAL CALENDAR

The program has an internal calendar for determining the number of weekdays and weekend days in each month.

- If a new Load Model is being created from scratch, the program will use its internal calendar to determine the number of days of each type for each month and each year.
- If a Load Model is being created from an existing Load Model, the program will use the number of days read from the original Load Model.
- If the number of years on a new Load Model will be greater than the number of years on the original one, the program will copy the number of days from the original Load Model and access the internal calendar logic to determine the number of days for years beyond the original Load Model.

The user has the option to input the number of weekdays and weekend days, thereby bypassing the internal calendar logic.

KALEND = _____, Option to bypass program logic to determine number of weekdays and weekend days from internal calendar.
0 = Use program logic.
1 = User will input number of days.
Must input NUMWK and NUMWE.

NUMWK(12) Number of weekdays per month.

NUMWE(12) Number of weekend days and holidays per month.

User may change NUMWK and NUMWE data annually by means of IYREAD input.

NUMWK = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

NUMWE = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

NOTE: The program always uses the internal calendar when it develops monthly and annual load factors when ISPEC≠0.

OUTPUT OPTIONS

LPRINT(40) — Code to print annual MW load model, by year.
0 = Omit.
1 = Print MW reliability and production cost load model.
Initialized to 1.

KPRINT(40) — Code to print annual p.u. load model, by year.
0 = Omit.
1 = Print p.u. reliability and production cost load model.
Initialized to 0.

M7 = _____, Option to print remote summary output.
0 = Omit.
7 = Output will be written on Report 07.

IYREAD = _____$ Year in which to read next set of data.

IYREAD=0$ Current set is last set of input data.

IYREAD=1985$ Next set of data will be read by program at beginning of 1985.

LPRINT = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

KPRINT = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

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EXTENDING A LOAD MODEL

The study period covered by a Load Model can be extended by including additional years either at the beginning or end of the existing Load Model. Adding years to the beginning and end of the Load Model requires two separate runs of the program. In doing this, the user must remember that the maximum length of a Load Model is 40 years.

ADDING YEARS TO THE BEGINNING OF THE LOAD MODEL

If the starting year for the new Load Model is earlier than the first year on the existing Load Model, the user may add years of load data to the beginning of the existing Load Model. The program will use the per-unit shapes from the first year of the existing Load Model for the additional years on the new Load Model. If ISPEC=1, the program will automatically alter these per-unit shapes to give the peaks, energies, and load factors requested for the additional years. The program will not make any changes to the data that was on the original Load Model.

Example: The existing Load Model contained the years 1985 through 1987. The new Load Model is to begin in 1983.

		1985	1986	1987	Original Load Model
1983	1984	1985	1986	1987	New Load Model

Required Input

NSTART = 1983,
NTOTAL = 5,
POOLMW = 900, 950, (years 1983 and 1984 only)
May input ISPEC and associated data for years 1983 and 1984 only

Program Logic

Read 1985 MW model from original Load Model and develop p.u. model.

Build 1983 and 1984 model using 1985 p.u. shapes and input POOLMW data. Further modifications may be made to 1983 and 1984 loads if ISPEC=1 option was used. Write 1983 and 1984 loads to the new Load Model.

Copy 1985, 1986 and 1987 loads to the new Load Model. No modifications will be made to these loads.

ADDING YEARS TO THE END OF THE LOAD MODEL

An existing Load Model can also be extended by adding years of load shapes to the end of it. If this is to be done, the starting year of the new Load Model must already be on the existing Load Model.

In developing the Load Model for the years beyond the last year of the original Load Model, the program will use the per-unit load shapes from the last year on the existing Load Model, whether it was read from the existing Load Model or supplied by the user through input data. The program will use its internal calendar to determine the number of weekdays and weekend days. The user may override the above data by supplying input on an annual basis by means of the IYREAD option.

LOAD SHAPE MODIFICATION

If ISPEC does not equal 0, the Load Model Program will automatically alter the load shapes to give the peaks, energies, and load factors specified by the user. The program can accomplish this change by modifying either the daily shapes or the month-to-annual ratios. The following examples outline the steps taken by the program in making these changes. This process is also described in Section 4 of the Descriptive Handbook.

DAILY SHAPE MODIFICATION

ISPEC≠0 and MOD=0 option

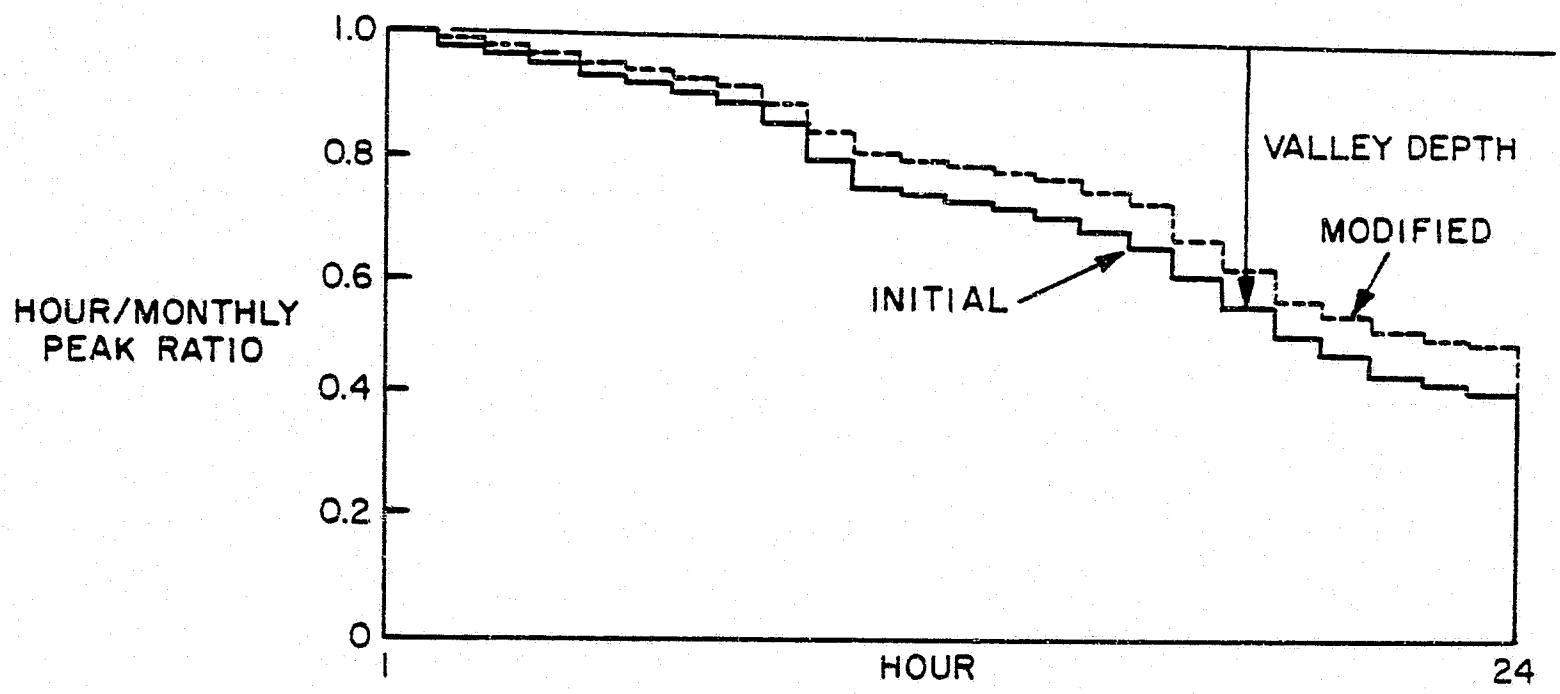

Figure 3-3. Example of Daily Shape Modification

(a) Determine the change in the total energy to be included on the Load Model.

(b) Allocate annual energy delta to months according to original monthly energies.
Skip months as indicated by input.

(c) Allocate monthly energy delta to day type according to original day type energies each month.
Skip day types as indicated by input.

(d) Raise hourly/month ratios according to "hourly load valley" and the energy allocation from Step (c) above.

MONTHLY PEAK MODIFICATION

ISPEC≠0 and MOD=1 option

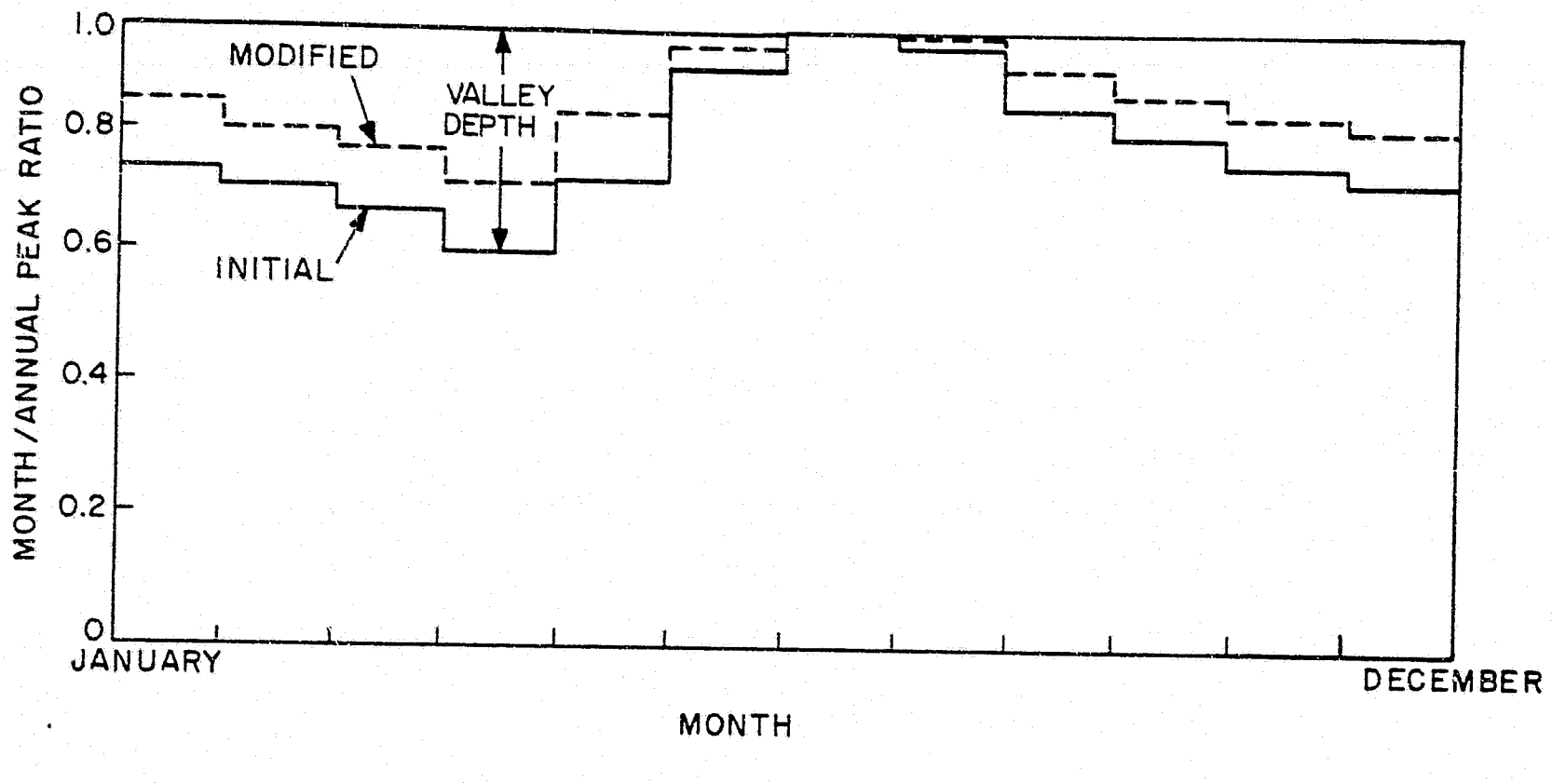

Figure 3-4. Example of Monthly Peak Modification

(a) Determine the change in the total energy to be included on the Load Model.

(b) Allocate annual energy delta to months according to "peak valley depth." Skip months as indicated by input.

$$\text{Monthly Energy Delta} = \frac{1.0 - (\text{monthly ratio})}{\sum_{m=1}^{12} (1.0 - \text{monthly ratio})} * (\text{Annual Delta})$$

(c) Raise month/annual ratio to increase monthly energy.

JOB SETUP

Listed below is a typical input file for the Load Model Program. An explanation of the function of specific lines in this file is found on page 2-18 of this manual.

```
100  BCR NEW LOAD MODEL;SIZE(1,150)
110  BRU *
120  BEN
130##NORM
140$:PROGRAM:RLHS
150$:LIMITS:02,32K,,10K
160$:PRMFL:H*,E,R,AQ43093/.LDMD6
170$:PRMFL:01,W,S,AQ43xxx/NEW LOAD MODEL
180$:PRMFL:02,R,S,AQ43xxx/ORIGINAL LOAD MODEL
190$:DATA:15
200$:REMOTE:06
210$:REMOTE:07
220  Name
230  Address
240  City, State, Zip
250  Additional Mailing
260  Instructions
270  User ID
300  $INPUT
     .
     Load Model Data
     .
1000$:Last input data must end with $
```

NOTE: If permanent space in Background had been created previously,
DELETE
100 BCR NEW LOAD MODEL;SIZE(1,150)

If the Load Model is to be created from scratch,
DELETE
180$:PRMFL:02,R,S,AQ43xxx/ORIGINAL LOAD MODEL

SAMPLE DATA FILES

The following pages contain six sample data files for the Load Model Program. The first two create a Load Model from scratch and the last four modify an existing Load Model. The following comments apply to the specific files:

CREATE LOAD MODEL FROM SCRATCH—GENERAL DATA ONLY

1. The new Load Model will be called LMFILE1. This file is created by line 100 and written to by line 170.

2. Lines 400 through 1480 contain the per-unit data used to determine the load shapes.

3. Lines 1490 through 1510 contain the desired annual peaks and load factors. Because ISPEC=1 (line 390), the program will automatically alter the load shapes defined by the per-unit data to give the peaks, load factors, and energies that were requested.

```
LMFILE1      04/07/83


100 BCR LMFILE1;SIZE(1,150)
110 BRU *
120 BEN
130 ##NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:01,32K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.LDMD6
170 $:PRMFL:01,W,S,AQ43005/LMFILE1
190 $:DATA:15
200 $:REMOTE:06
210 $:REMOTE:07
220             SIX LINES OF USER NAME, ADDRESS,
230             PHONE NUMBER, MARK III USER ID
240
250             TYPE OF MAIL SERVICE
260
270             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='LMFILE1     CREATE LOAD MODEL FROM SCRATCH',
320  ID2='GENERAL DATA ONLY,  ISPEC=1',
330  NTOTAL=5,
340  NSTART=1985,
350  NEW=1,
360  NEWNUM=1,
370  NEWP='EDISON',
380  NEWC='EDISON',
390  ISPEC=1,
400  FUANP=
410  0.9670, 0.9500, 0.9100, 0.8520, 0.8410, 1.0000, 0.9630, 0.9940,
420  0.9420, 0.8860, 0.9630, 0.9770,
```

```
430  PUMWK=
440  1.0000, 0.9508, 0.9095, 0.9079, 0.8941, 0.8849, 0.8772, 0.8742,
450  0.8726, 0.8311, 0.8281, 0.7958, 0.7713, 0.7314, 0.6992, 0.6531,
460  0.6117, 0.5733, 0.4627, 0.4398, 0.4137, 0.3906, 0.3614, 0.3400,
470  PUMWK(1,2)=
480  1.0000, 0.9608, 0.9577, 0.8998, 0.8794, 0.8731, 0.8700, 0.8684,
490  0.8606, 0.8480, 0.8183, 0.7791, 0.7619, 0.7322, 0.6883, 0.6555,
500  0.6069, 0.5850, 0.4691, 0.4472, 0.4127, 0.4018, 0.3641, 0.3531,
510  PUMWK(1,3)=
520  1.0000, 0.9481, 0.9347, 0.9263, 0.9012, 0.8845, 0.8410, 0.8276,
530  0.8208, 0.8175, 0.8142, 0.7790, 0.7706, 0.7204, 0.6752, 0.6685,
540  0.6015, 0.5714, 0.4625, 0.4542, 0.4157, 0.4023, 0.3587, 0.3354,
550  PUMWK(1,4)=
560  1.0000, 0.9225, 0.9154, 0.9119, 0.8837, 0.8661, 0.8625, 0.8343,
570  0.8185, 0.7868, 0.7797, 0.7727, 0.7656, 0.7586, 0.6987, 0.6634,
580  0.5841, 0.5753, 0.4555, 0.4290, 0.3955, 0.3850, 0.3621, 0.3233,
590  PUMWK(1,5)=
600  1.0000, 0.9430, 0.9095, 0.8910, 0.8625, 0.8574, 0.8541, 0.8374,
610  0.8156, 0.7971, 0.7736, 0.7551, 0.7417, 0.7115, 0.6261, 0.5909,
620  0.5740, 0.5691, 0.4147, 0.4030, 0.3560, 0.3444, 0.3191, 0.3091,
630  PUMWK(1,6)=
640  1.0000, 0.9180, 0.9015, 0.8776, 0.8569, 0.8314, 0.8031, 0.7867,
650  0.7807, 0.7644, 0.7331, 0.7122, 0.6897, 0.6718, 0.6063, 0.5466,
660  0.5227, 0.5048, 0.4272, 0.3706, 0.3512, 0.3199, 0.3050, 0.2826,
670  PUMWK(1,7)=
680  1.0000, 0.9083, 0.8951, 0.8936, 0.8773, 0.8434, 0.8345, 0.8048,
690  0.7887, 0.7680, 0.7413, 0.7191, 0.6984, 0.6926, 0.6053, 0.5625,
700  0.5092, 0.4797, 0.4161, 0.3969, 0.3615, 0.3229, 0.3068, 0.2949,
710  PUMWK(1,8)=
720  1.0000, 0.9166, 0.9017, 0.8868, 0.8644, 0.8436, 0.8257, 0.8093,
730  0.7944, 0.7750, 0.7512, 0.7259, 0.7155, 0.7139, 0.6007, 0.5546,
740  0.5158, 0.4875, 0.4086, 0.3847, 0.3639, 0.3192, 0.3028, 0.2954,
750  PUMWK(1,9)=
760  1.0000, 0.9285, 0.8944, 0.8912, 0.8652, 0.8523, 0.8458, 0.8409,
770  0.8295, 0.8100, 0.8003, 0.7922, 0.7678, 0.7646, 0.6005, 0.5860,
780  0.5649, 0.5405, 0.4040, 0.3798, 0.3407, 0.3262, 0.3131, 0.2969,
790  PUMWK(1,10)=
800  1.0000, 0.9450, 0.9317, 0.9133, 0.8933, 0.8866, 0.8717, 0.8566,
810  0.8333, 0.8300, 0.8283, 0.8049, 0.7850, 0.7666, 0.6883, 0.6399,
820  0.5816, 0.5515, 0.4348, 0.3966, 0.3582, 0.3432, 0.3281, 0.2848,
830  PUMWK(1,11)=
840  1.0000, 0.9436, 0.9309, 0.8949, 0.8855, 0.8776, 0.8651, 0.8572,
850  0.8321, 0.8196, 0.7898, 0.7772, 0.7490, 0.7318, 0.6784, 0.6392,
860  0.5764, 0.5466, 0.4305, 0.4164, 0.3787, 0.3599, 0.3223, 0.3129,
870  PUMWK(1,12)=
880  1.0000, 0.8855, 0.8447, 0.8447, 0.8381, 0.8355, 0.8263, 0.8013,
890  0.7842, 0.7710, 0.7276, 0.7211, 0.7170, 0.7079, 0.6236, 0.5973,
900  0.5618, 0.5328, 0.4512, 0.4447, 0.4104, 0.3894, 0.3604, 0.3289,
910  PUMWE=
920  0.8227, 0.8073, 0.7780, 0.7502, 0.7256, 0.6916, 0.6855, 0.6824,
930  0.6654, 0.6408, 0.6207, 0.6069, 0.5791, 0.5636, 0.5436, 0.5297,
940  0.5251, 0.5097, 0.4696, 0.4234, 0.4110, 0.3864, 0.3693, 0.3031,
```

```
LMFILE1      04/07/83

950   PUMWE(1,2)=
960   0.8183, 0.7599, 0.7461, 0.7169, 0.7077, 0.6786, 0.6571, 0.6479,
970   0.6341, 0.6295, 0.6095, 0.5788, 0.5650, 0.5557, 0.5481, 0.5205,
980   0.4959, 0.4713, 0.4498, 0.4437, 0.4390, 0.4207, 0.3608, 0.3331,
990   PUMWE(1,3)=
1000   0.7900, 0.7457, 0.7406, 0.7201, 0.7049, 0.6776, 0.6537, 0.6333,
1010   0.6230, 0.6061, 0.5822, 0.5669, 0.5533, 0.5328, 0.5175, 0.5124,
1020   0.5021, 0.4783, 0.4545, 0.4391, 0.4085, 0.3983, 0.3864, 0.3080,
1030   PUMWE(1,4)=
1040   0.7745, 0.7255, 0.7075, 0.6929, 0.6839, 0.6584, 0.6493, 0.6384,
1050   0.6149, 0.6058, 0.5931, 0.5732, 0.5459, 0.5242, 0.5188, 0.5169,
1060   0.4988, 0.4643, 0.4407, 0.4172, 0.3845, 0.3664, 0.3464, 0.3083,
1070   PUMWE(1,5)=
1080   0.7478, 0.6877, 0.6603, 0.6501, 0.6449, 0.6330, 0.6072, 0.5918,
1090   0.5781, 0.5557, 0.5352, 0.5232, 0.5044, 0.4854, 0.4838, 0.4804,
1100   0.4580, 0.4341, 0.4169, 0.3963, 0.3620, 0.3414, 0.3226, 0.3019,
1110   PUMWE(1,6)=
1120   0.7352, 0.6734, 0.6456, 0.6240, 0.6162, 0.6023, 0.5838, 0.5730,
1130   0.5591, 0.5405, 0.5297, 0.5097, 0.4988, 0.4819, 0.4556, 0.4371,
1140   0.4231, 0.4031, 0.3907, 0.3753, 0.3397, 0.3166, 0.3057, 0.2748,
1150   PUMWE(1,7)=
1160   0.7842, 0.7075, 0.6691, 0.6514, 0.6189, 0.6056, 0.5982, 0.5894,
1170   0.5775, 0.5524, 0.5362, 0.5258, 0.5200, 0.5067, 0.4890, 0.4801,
1180   0.4343, 0.4151, 0.4018, 0.3827, 0.3501, 0.3294, 0.2970, 0.2896,
1190   PUMWE(1,8)=
1200   0.7887, 0.7404, 0.6966, 0.6709, 0.6634, 0.6301, 0.6211, 0.6090,
1210   0.5969, 0.5788, 0.5531, 0.5259, 0.5169, 0.5063, 0.4942, 0.4836,
1220   0.4353, 0.4156, 0.4035, 0.4005, 0.3476, 0.3432, 0.3069, 0.2932,
1230   PUMWE(1,9)=
1240   0.7859, 0.7322, 0.6899, 0.6802, 0.6525, 0.6395, 0.6362, 0.6281,
1250   0.6151, 0.5858, 0.5533, 0.5484, 0.5158, 0.5045, 0.4866, 0.4719,
1260   0.4638, 0.4395, 0.4183, 0.3939, 0.3695, 0.3418, 0.3206, 0.3076,
1270   PUMWE(1,10)=
1280   0.7964, 0.7564, 0.7230, 0.7164, 0.6947, 0.6696, 0.6496, 0.6446,
1290   0.6380, 0.6296, 0.6213, 0.5646, 0.5429, 0.5363, 0.5279, 0.5079,
1300   0.4963, 0.4495, 0.4245, 0.3979, 0.3678, 0.3612, 0.3311, 0.2962,
1310   PUMWE(1,11)=
1320   0.7812, 0.7763, 0.7405, 0.7110, 0.6996, 0.6752, 0.6686, 0.6442,
1330   0.6442, 0.5936, 0.5855, 0.5855, 0.5545, 0.5348, 0.5153, 0.5006,
1340   0.4859, 0.4696, 0.4272, 0.3881, 0.3864, 0.3684, 0.3472, 0.2836,
1350   PUMWE(1,12)=
1360   0.8240, 0.7954, 0.7302, 0.7195, 0.7018, 0.6705, 0.6556, 0.6528,
1370   0.6311, 0.6000, 0.5918, 0.5632, 0.5632, 0.5388, 0.5266, 0.5198,
1380   0.4980, 0.4927, 0.4601, 0.3976, 0.3908, 0.3800, 0.3650, 0.3230,
1390   PUANR=
1400   0.9670, 0.9500, 0.9100, 0.8520, 0.8410, 1.0000, 0.9630, 0.9940,
1410   0.9420, 0.8860, 0.9630, 0.9770,
```

LMFILE1 04/07/83

```
1420  PUMR=
1430  1.0000, 0.9980, 0.9140, 0.9140, 1.0000, 0.9350, 0.9350, 0.9160,
1440  1.0000, 0.9380, 0.9340, 0.8570, 1.0000, 0.9330, 0.9090, 0.7620,
1450  1.0000, 0.9320, 0.9310, 0.8780, 1.0000, 0.8950, 0.8770, 0.8500,
1460  1.0000, 0.9150, 0.8770, 0.8760, 1.0000, 0.9710, 0.8950, 0.8920,
1470  1.0000, 0.8950, 0.8750, 0.8380, 1.0000, 0.9650, 0.9300, 0.8830,
1480  1.0000, 0.9600, 0.9200, 0.8780, 1.0000, 0.9580, 0.9150, 0.8340,
1490  POOLMW=5000,
1500  GRMW=5*1.035,
1510  XLF=5*.60,
1520  KPRINT=1,3*0,1,
1530  LPRINT=5*1,
1540  M7=7,
1550  IYREAD=0$
```

CREATE LOAD MODEL FROM SCRATCH—ANNUAL DATA CHANGES

1. The new Load Model will be called LMFILE2. This file is created by line 100 and written to by line 170.

2. IYREAD=1988 (line 1540) tells the program that the next set of NAMELIST input data (lines 1560 through 1590) will apply beginning in 1988.

3. Because line 1550 is between an ending $ and the next $INPUT, it is not read by the system. This provides a convenient way to document data.

4. Lines 1560 through 1590 contain the annual overrides that take effect in 1988, changing the month-to-annual ratios that were input on lines 400 through 420 and 1390 through 1410.

```
LMFILE2      04/07/83


100 BCR LMFILE2;SIZE(1,150)
110 BRU *
120 BEN
130 $$NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:01,32K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.LDMD6
170 $:PRMFL:01,W,S,AQ43005/LMFILE2
190 $:DATA:15
200 $:REMOTE:06
210 $:REMOTE:07
220             SIX LINES OF USER NAME, ADDRESS,
230             PHONE NUMBER, MARK III USER ID
240
250             TYPE OF MAIL SERVICE
260
270             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='LMFILE2    CREATE LOAD MODEL FROM SCRATCH',
320  ID2='ANNUAL DATA CHANGES,  ISPEC=0',
330  NTOTAL=5,
340  NSTART=1985,
350  NEW=1,
360  NEWNUM=1,
370  NEWP='EDISON',
380  NEWC='EDISON',
390  ISPEC=0,
400  PUANP=
410  0.9670, 0.9500, 0.9100, 0.8520, 0.8410, 1.0000, 0.9630, 0.9940,
420  0.9420, 0.8860, 0.9630, 0.9770,
430  PUMWK=
440  1.0000, 0.9508, 0.9095, 0.9079, 0.8941, 0.8849, 0.8772, 0.8742,
450  0.8726, 0.8311, 0.8281, 0.7958, 0.7713, 0.7314, 0.6992, 0.6531,
460  0.6117, 0.5733, 0.4627, 0.4398, 0.4137, 0.3906, 0.3614, 0.3400,
```

```
PUMWK(1,2)=
1.0000, 0.9608, 0.9577, 0.8998, 0.8794, 0.8731, 0.8700, 0.8684,
0.8606, 0.8480, 0.8183, 0.7791, 0.7619, 0.7322, 0.6883, 0.6555,
0.6069, 0.5850, 0.4691, 0.4472, 0.4127, 0.4018, 0.3641, 0.3531,
PUMWK(1,3)=
1.0000, 0.9481, 0.9347, 0.9263, 0.9012, 0.8845, 0.8410, 0.8276,
0.8208, 0.8175, 0.8142, 0.7790, 0.7706, 0.7204, 0.6752, 0.6685,
0.6015, 0.5714, 0.4625, 0.4542, 0.4157, 0.4023, 0.3587, 0.3354,
PUMWK(1,4)=
1.0000, 0.9225, 0.9154, 0.9119, 0.8837, 0.8661, 0.8625, 0.8343,
0.8185, 0.7868, 0.7797, 0.7727, 0.7656, 0.7586, 0.6987, 0.6634,
0.5841, 0.5753, 0.4555, 0.4290, 0.3955, 0.3850, 0.3621, 0.3233,
PUMWK(1,5)=
1.0000, 0.9430, 0.9095, 0.8910, 0.8625, 0.8574, 0.8541, 0.8374,
0.8156, 0.7971, 0.7736, 0.7551, 0.7417, 0.7115, 0.6261, 0.5909,
0.5740, 0.5691, 0.4147, 0.4030, 0.3560, 0.3444, 0.3191, 0.3091,
PUMWK(1,6)=
1.0000, 0.9180, 0.9015, 0.8776, 0.8569, 0.8314, 0.8031, 0.7867,
0.7807, 0.7644, 0.7331, 0.7122, 0.6897, 0.6718, 0.6063, 0.5466,
0.5227, 0.5048, 0.4272, 0.3706, 0.3512, 0.3199, 0.3050, 0.2826,
PUMWK(1,7)=
1.0000, 0.9083, 0.8951, 0.8936, 0.8773, 0.8434, 0.8345, 0.8048,
0.7887, 0.7680, 0.7413, 0.7191, 0.6984, 0.6926, 0.6053, 0.5625,
0.5092, 0.4797, 0.4161, 0.3969, 0.3615, 0.3229, 0.3068, 0.2949,
PUMWK(1,8)=
1.0000, 0.9166, 0.9017, 0.8868, 0.8644, 0.8436, 0.8257, 0.8093,
0.7944, 0.7750, 0.7512, 0.7259, 0.7155, 0.7139, 0.6007, 0.5546,
0.5158, 0.4875, 0.4086, 0.3847, 0.3639, 0.3192, 0.3028, 0.2954,
PUMWK(1,9)=
1.0000, 0.9285, 0.8944, 0.8912, 0.8652, 0.8523, 0.8458, 0.8409,
0.8295, 0.8100, 0.8003, 0.7922, 0.7678, 0.7646, 0.6005, 0.5860,
0.5649, 0.5405, 0.4040, 0.3798, 0.3407, 0.3262, 0.3131, 0.2969,
PUMWK(1,10)=
1.0000, 0.9450, 0.9317, 0.9133, 0.8933, 0.8866, 0.8717, 0.8566,
0.8333, 0.8300, 0.8283, 0.8049, 0.7850, 0.7666, 0.6883, 0.6399,
0.5816, 0.5515, 0.4348, 0.3966, 0.3582, 0.3432, 0.3281, 0.2848,
PUMWK(1,11)=
1.0000, 0.9436, 0.9309, 0.8949, 0.8855, 0.8776, 0.8651, 0.8572,
0.8321, 0.8196, 0.7898, 0.7772, 0.7490, 0.7318, 0.6784, 0.6392,
0.5764, 0.5466, 0.4305, 0.4164, 0.3787, 0.3599, 0.3223, 0.3129,
PUMWK(1,12)=
1.0000, 0.8855, 0.8447, 0.8447, 0.8381, 0.8355, 0.8263, 0.8013,
0.7842, 0.7710, 0.7276, 0.7211, 0.7170, 0.7079, 0.6236, 0.5973,
0.5618, 0.5328, 0.4512, 0.4447, 0.4104, 0.3894, 0.3604, 0.3289,
PUMWE=
0.8227, 0.8073, 0.7780, 0.7502, 0.7256, 0.6916, 0.6855, 0.6824,
0.6654, 0.6408, 0.6207, 0.6069, 0.5791, 0.5636, 0.5436, 0.5297,
0.5251, 0.5097, 0.4696, 0.4234, 0.4110, 0.3864, 0.3693, 0.3031,
```

```
 950  PUMWE(1,2)=
 960  0.8183, 0.7599, 0.7461, 0.7169, 0.7077, 0.6786, 0.6571, 0.6479,
 970  0.6341, 0.6295, 0.6095, 0.5788, 0.5650, 0.5557, 0.5481, 0.5205,
 980  0.4959, 0.4713, 0.4498, 0.4437, 0.4390, 0.4207, 0.3608, 0.3331,
 990  PUMWE(1,3)=
1000  0.7900, 0.7457, 0.7406, 0.7201, 0.7049, 0.6776, 0.6537, 0.6333,
1010  0.6230, 0.6061, 0.5822, 0.5669, 0.5533, 0.5328, 0.5175, 0.5124,
1020  0.5021, 0.4783, 0.4545, 0.4391, 0.4085, 0.3983, 0.3864, 0.3080,
1030  PUMWE(1,4)=
1040  0.7745, 0.7255, 0.7075, 0.6929, 0.6839, 0.6584, 0.6493, 0.6384,
1050  0.6149, 0.6058, 0.5931, 0.5732, 0.5459, 0.5242, 0.5188, 0.5169,
1060  0.4988, 0.4643, 0.4407, 0.4172, 0.3845, 0.3664, 0.3464, 0.3083,
1070  PUMWE(1,5)=
1080  0.7478, 0.6877, 0.6603, 0.6501, 0.6449, 0.6330, 0.6072, 0.5918,
1090  0.5781, 0.5557, 0.5352, 0.5232, 0.5044, 0.4854, 0.4838, 0.4804,
1100  0.4580, 0.4341, 0.4169, 0.3963, 0.3620, 0.3414, 0.3226, 0.3019,
1110  PUMWE(1,6)=
1120  0.7352, 0.6734, 0.6456, 0.6240, 0.6162, 0.6023, 0.5838, 0.5730,
1130  0.5591, 0.5405, 0.5297, 0.5097, 0.4988, 0.4819, 0.4556, 0.4371,
1140  0.4231, 0.4031, 0.3907, 0.3753, 0.3397, 0.3166, 0.3057, 0.2748,
1150  PUMWE(1,7)=
1160  0.7842, 0.7075, 0.6691, 0.6514, 0.6189, 0.6056, 0.5982, 0.5894,
1170  0.5775, 0.5524, 0.5362, 0.5258, 0.5200, 0.5067, 0.4890, 0.4801,
1180  0.4343, 0.4151, 0.4018, 0.3827, 0.3501, 0.3294, 0.2970, 0.2896,
1190  PUMWE(1,8)=
1200  0.7887, 0.7404, 0.6966, 0.6709, 0.6634, 0.6301, 0.6211, 0.6090,
1210  0.5969, 0.5788, 0.5531, 0.5259, 0.5169, 0.5063, 0.4942, 0.4836,
1220  0.4353, 0.4156, 0.4035, 0.4005, 0.3476, 0.3432, 0.3069, 0.2932,
1230  PUMWE(1,9)=
1240  0.7859, 0.7322, 0.6899, 0.6802, 0.6525, 0.6395, 0.6362, 0.6281,
1250  0.6151, 0.5858, 0.5533, 0.5484, 0.5158, 0.5045, 0.4866, 0.4719,
1260  0.4638, 0.4395, 0.4183, 0.3939, 0.3695, 0.3418, 0.3206, 0.3076,
1270  PUMWE(1,10)=
1280  0.7964, 0.7564, 0.7230, 0.7164, 0.6947, 0.6696, 0.6496, 0.6446,
1290  0.6380, 0.6296, 0.6213, 0.5646, 0.5429, 0.5363, 0.5279, 0.5079,
1300  0.4963, 0.4495, 0.4245, 0.3979, 0.3678, 0.3612, 0.3311, 0.2962,
1310  PUMWE(1,11)=
1320  0.7812, 0.7763, 0.7405, 0.7110, 0.6996, 0.6752, 0.6686, 0.6442,
1330  0.6442, 0.5936, 0.5855, 0.5855, 0.5545, 0.5348, 0.5153, 0.5006,
1340  0.4859, 0.4696, 0.4272, 0.3881, 0.3864, 0.3684, 0.3472, 0.2836,
1350  PUMWE(1,12)=
1360  0.8240, 0.7954, 0.7302, 0.7195, 0.7018, 0.6705, 0.6556, 0.6528,
1370  0.6311, 0.6000, 0.5918, 0.5632, 0.5632, 0.5388, 0.5266, 0.5198,
1380  0.4980, 0.4927, 0.4601, 0.3976, 0.3908, 0.3800, 0.3650, 0.3230,
1390  PUANR=
1400  0.9670, 0.9500, 0.9100, 0.8520, 0.8410, 1.0000, 0.9630, 0.9940,
1410  0.9420, 0.8860, 0.9630, 0.9770,
```

```
1420  PUMR=
1430  1.0000, 0.9980, 0.9140, 0.9140, 1.0000, 0.9350, 0.9350, 0.9160,
1440  1.0000, 0.9380, 0.9340, 0.8570, 1.0000, 0.9330, 0.9090, 0.7620,
1450  1.0000, 0.9320, 0.9310, 0.8780, 1.0000, 0.8950, 0.8770, 0.8500,
1460  1.0000, 0.9150, 0.8770, 0.8760, 1.0000, 0.9710, 0.8950, 0.8920,
1470  1.0000, 0.8950, 0.8750, 0.8380, 1.0000, 0.9650, 0.9300, 0.8830,
1480  1.0000, 0.9600, 0.9200, 0.8780, 1.0000, 0.9580, 0.9150, 0.8340,
1490  POOLMW=5000,
1500  GRMW=5*1.035,
1510  KPRINT=1,3*0,1,
1520  LPRINT=5*1,
1530  M7=7,
1540  IYREAD=1988$
1550  THE FOLLOWING OVERRIDES CAUSE AUGUST TO BECOME THE PEAK MONTH
1560  $INPUT
1570  PUANR=0.97,0.96,0.91,0.85,0.84,0.95,0.99,1.0,0.94,0.98,0.96,0.98,
1580  PUANP=0.97,0.96,0.91,0.85,0.84,0.95,0.99,1.0,0.94,0.98,0.96,0.98,
1590  IYREAD=0$
```

MODIFY EXISTING LOAD MODEL—ANNUAL DATA

1. The load data on the Load Model LMFILE1 (read in on line 180) will be modified.

2. The new Load Model will be called LMFILE3.

3. Lines 370 through 420 contain the data describing the changes to be made to LMFILE1.

4. Lines 470 through 500 override the data in lines 410 and 420, beginning in 1989.

```
LMFILE3      15:49EST     04/07/83

100 BCR LMFILE3;SIZE(1,150)
110 BRU *
120 BEN
130 $$NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:01,32K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.LDMD6
170 $:PRMFL:01,W,S,AQ43005/LMFILE3
180 $:PRMFL:02,R,S,AQ43005/LMFILE1
190 $:DATA:15
200 $:REMOTE:06
210 $:REMOTE:07
220             SIX LINES OF USER NAME, ADDRESS,
230             PHONE NUMBER, MARK III USER ID
240
250             TYPE OF MAIL SERVICE
260
270             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='LMFILE3     MODIFY EXISTING LOAD MODEL',
320  ID2='ANNUAL DATA CHANGES,  ISPEC=0',
330  NTOTAL=5,
340  NSTART=1985,
350  NEW=0,
360  ISPEC=0,
370  NEWANF=2*0,3*1,
380  POOLMW(3)=5560,5765,5970,
390  NEWMOR=2*0,3*1,
400  NEWMOF=2*0,3*1,
410  PUANR=0.97,0.96,0.91,0.85,0.84,0.95,1.0,0.99,0.94,0.98,0.96,0.98,
420  PUANF=0.97,0.96,0.91,0.85,0.84,0.95,1.0,0.99,0.94,0.98,0.96,0.98,
430  KPRINT=1,3*0,1,
440  LPRINT=5*1,
450  M7=7,
460  IYREAD=1989$
470  $INPUT
480  PUANR=0.97,0.96,0.91,0.85,0.84,0.95,0.99,1.0,0.94,0.98,0.96,0.98,
490  PUANF=0.97,0.96,0.91,0.85,0.84,0.95,0.99,1.0,0.94,0.98,0.96,0.98,
500  IYREAD=0$
```

MODIFY EXISTING LOAD MODEL—MONTHLY DATA

1. The load data on LMFILE1 will be modified and the new Load Model written to LMFILE4.

2. Because ISPEC=1, the program will alter the load data read from LMFILE1 to give the monthly loads and energies specified on lines 360 through 410.

```
LMFILE4      15:49EST     04/07/83

100 BCR LMFILE4;SIZE(1,150)
110 BRU *
120 BEN
130 $$NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:01,32K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.LDMD6
170 $:PRMFL:01,W,S,AQ43005/LMFILE4
180 $:PRMFL:02,R,S,AQ43005/LMFILE1
190 $:DATA:15
200 $:REMOTE:06
210 $:REMOTE:07
220             SIX LINES OF USER NAME, ADDRESS,
230             PHONE NUMBER, MARK III USER ID
240
250             TYPE OF MAIL SERVICE
260
270             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='LMFILE4    MODIFY EXISTING LOAD MODEL',
320  ID2='MONTHLY DATA,  ISPEC=1',
330  NTOTAL=5,
340  NSTART=1985,
350  ISPEC=1,
360  ENERGY=244+3,215+3,225+3,204+3,199+3,217+3,
370         222+3,230+3,214+3,219+3,226+3,232+3,
380  EMGROW=40*1.04,40*1.038,40*1.036,160*1.035,
390         40*1.036,80*1.037,80*1.039,
400  PUMON=0.97,0.96,0.91,0.85,0.84,0.95,0.99,1.0,0.94,0.98,0.96,0.98,
410  POOLMW=5000,5200,5400,5600,5800,
420  KPRINT=1,3*0,1,
430  LPRINT=5*1,
440  M7=7,
450  IYREAD=0$
```

0 0 0 2 5 1

MODIFY EXISTING LOAD MODEL—ANNUAL DATA

1. LMFILE5 is the name of the new Load Model.

2. Because ISPEC=1, the program will modify the load data read from LMFILE1 to give the annual peak loads and load factors specified on lines 360 through 380.

```
LMFILE5      15:49EST     04/07/83

100 BCR LMFILE5;SIZE(1,150)
110 BRU *
120 BEN
130 $$NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:01,32K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.LDMD6
170 $:PRMFL:01,W,S,AQ43005/LMFILE5
180 $:PRMFL:02,R,S,AQ43005/LMFILE1
190 $:DATA:15
200 $:REMOTE:06
210 $:REMOTE:07
220             SIX LINES OF USER NAME, ADDRESS,
230             PHONE NUMBER, MARK III USER ID
240
250             TYPE OF MAIL SERVICE
260
270             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='LMFILE5    MODIFY EXISTING LOAD MODEL',
320  ID2='ANNUAL DATA,  ISPEC=1',
330  NTOTAL=5,
340  NSTART=1985,
350  ISPEC=1,
360  POOLMW=5000,
370  GRMW=1.04,1.037,3*1.036,
380  XLF=0.60,0.601,0.602,0.603,0.604,
390  KPRINT=1, 3*0, 1,
400  LPRINT=5*1,
410  M7=7,
420  IYREAD=0$
```

0025517

EXTENDING AN EXISTING LOAD MODEL

1. The existing Load Model (LMFILE1) is five years long; the new one (LMFILE6) will be ten years long.

2. The program will use the last year of LMFILE1 as the basis for the five additional years. Because ISPEC=1, this per-unit data will be modified to give the peak loads and load factors specified on lines 360 and 370.

3. Lines 410 through 430 contain annual overrides that become effective in 1993.

```
LIST LMFILE6
LMFILE6      15:50EST     04/07/83

100 BCR LMFILE6;SIZE(1,150)
110 BRU *
120 BEN
130 **NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:01,32K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.LDMD6
170 $:PRMFL:01,W,S,AQ43005/LMFILE6
180 $:PRMFL:02,R,S,AQ43005/LMFILE1
190 $:DATA:15
200 $:REMOTE:06
210 $:REMOTE:07
220             SIX LINES OF USER NAME, ADDRESS,
230             PHONE NUMBER, MARK III USER ID
240
250             TYPE OF MAIL SERVICE
260
270             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='LMFILE6     MODIFY EXISTING LOAD MODEL',
320  ID2='EXTEND LOAD MODEL BY 5 YEARS,  ISPEC=1',
330  NTOTAL=10,
340  NSTART=1985,
350  ISPEC=1,
360  GRMW(6)=5*1.03,
370  XLF(6)=0.60,0.601,0.602,0.603,0.604,
380  KPRINT=1,3*0,1,
390  M7=7,
400  IYREAD=1993$
410  $INPUT
420  PUANR=0.97,0.96,0.91,0.85,0.84,0.95,0.99,1.0,0.94,0.98,0.96,0.98,
430  PUANP=0.97,0.96,0.91,0.85,0.84,0.95,0.99,1.0,0.94,0.98,0.96,0.98,
440  IYREAD=0$
```

SAMPLE OUTPUT

This section contains the bulk output (Report 06) and summary output (Report 07) from the Load Model Program for a run creating a Load Model from scratch using the input data file on page 3-58.

The bulk output begins with a heading page that contains the six lines of input that was between the last control card and the first $INPUT. Following this is a listing of the NAMELIST input data. The monthly production cost and reliability load models are next. The variables KPRINT and LPRINT determine the years for which these load models are printed, and whether the MW or per-unit data is output. The last page of the bulk output is a summary of the annual peak loads, energies, and load factors.

The next page is the summary output that can be received via the terminal if M7=7 was in the NAMELIST input file. This page lists the NAMELIST data records that were read and the annual summary of peak loads, energies, and load factors. If any errors occurred during the run, the error messages would also print on this page.

```
06/01/83 1128NT .LDMD6                                                    **
LMFILE1    CREATE LOAD MODEL FROM SCRATCH                                 **
GENERAL DATA ONLY,  ISPEC=1                                               **
```


```
**********************************************************
**********************************************************
**                                                      **
**    COPYRIGHT 1971, GENERAL ELECTRIC COMPANY          **
**   .LDMD6 PROGRAM PUBLISHED ONLY IN A LIMITED,        **
**  COPYRIGHT SENSE, AND ALL RIGHTS, INCLUDING          **
**   TRADE SECRET RIGHTS, ARE RESERVED.                 **
**                                                      **
**********************************************************
**********************************************************
```


MAILING LABEL—SEE SECTION 2 FOR INSTRUCTIONS.

```
**********************************************************************************************
**********************************************************************************************
**                                                                                          **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**          MAIL OUTPUT TO                                                                  **
**                                                                                          **
**                                                                                          **
**                    SIX LINES OF USER NAME, ADDRESS,                                      **
**                    PHONE NUMBER, MARK III USER ID                                        **
**                                                                                          **
**                    TYPE OF MAIL SERVICE                                                  **
**                    NOTE - DO NOT USE CHARACTER COLON                                     **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**********************************************************************************************
**********************************************************************************************
```

HONEYWELL PAGE PRINTING SYSTEM- B1180-02

GENERAL ELECTRIC COMPANY
.LDMD6, EUSED PROGRAM TO CREATE OR MODIFY A LOAD MODEL

LISTING OF INPUT DATA
DATE- 06/01/83 TIME- 14.318
JOB NUMBER 1128NT

```
                SIX LINES OF USER NAME, ADDRESS,                                    00000220
                PHONE NUMBER, MARK III USER ID                                      00000230
                TYPE OF MAIL SERVICE                                                00000250
                NOTE - DO NOT USE CHARACTER COLON                                   00000270
 $INPUT                                                                             00000300
 ID1='LMFILE1     CREATE LOAD MODEL FROM SCRATCH',                                  00000310
 ID2='GENERAL DATA ONLY,  ISPEC= ,                                                  00000320
 NTOTAL=5,                                                                          00000330
 NSTART=1985,                                                                       00000340
 NEW=1,                                                                             00000350
 NEWNUM=1,                                                                          00000360
 NEWP='EDISON',                                                                     00000370
 NEWC='EDISON',                                                                     00000380
 ISPEC=1,                                                                           00000390
 PUANP=                                                                             00000400
 0.9670, 0.9500, 0.9100, 0.8520, 0.8410, 1.0000, 0.9630, 0.9940,                    00000410
 0.9420, 0.8860, 0.9630, 0.9770,                                                    00000420
 PUMWK=                                                                             00000430
 1.0000, 0.9508, 0.9095, 0.9079, 0.8941, 0.8849, 0.8772, 0.8742,                    00000440
 0.8726, 0.8311, 0.8281, 0.7958, 0.7713, 0.7314, 0.6992, 0.6531,                    00000450
 0.6117, 0.5733, 0.4627, 0.4398, 0.4137, 0.3906, 0.3614, 0.3400,                    00000460
 PUMWK(1,2)=                                                                        00000470
 1.0000, 0.9608, 0.9577, 0.8998, 0.8794, 0.8731, 0.8700, 0.8684,                    00000480
 0.8606, 0.8480, 0.8183, 0.7791, 0.7619, 0.7322, 0.6883, 0.6555,                    00000490
 0.6069, 0.5850, 0.4691, 0.4472, 0.4127, 0.4018, 0.3641, 0.3531,                    00000500
 PUMWK(1,3)=                                                                        00000510
 1.0000, 0.9481, 0.9347, 0.9263, 0.9012, 0.8845, 0.8410, 0.8276,                    00000520
 0.8208, 0.8175, 0.8142, 0.7790, 0.7706, 0.7204, 0.6752, 0.6685,                    00000530
 0.6015, 0.5714, 0.4625, 0.4542, 0.4157, 0.4023, 0.3587, 0.3354,                    00000540
 PUMWK(1,4)=                                                                        00000550
 1.0000, 0.9225, 0.9154, 0.9119, 0.8837, 0.8661, 0.8625, 0.8343,                    00000560
 0.8185, 0.7868, 0.7797, 0.7727, 0.7656, 0.7586, 0.6987, 0.6634,                    00000570
 0.5841, 0.5753, 0.4555, 0.4290, 0.3955, 0.3850, 0.3621, 0.3233,                    00000580
 PUMWK(1,5)=                                                                        00000590
 1.0000, 0.9430, 0.9095, 0.8910, 0.8625, 0.8574, 0.8541, 0.8374,                    00000600
 0.8156, 0.7971, 0.7736, 0.7551, 0.7417, 0.7115, 0.6261, 0.5909,                    00000610
 0.5740, 0.5691, 0.4147, 0.4030, 0.3560, 0.3444, 0.3191, 0.3091,                    00000620
 PUMWK(1,6)=                                                                        00000630
 1.0000, 0.9180, 0.9015, 0.8776, 0.8569, 0.8314, 0.8031, 0.7867,                    00000640
 0.7807, 0.7644, 0.7331, 0.7122, 0.6897, 0.6718, 0.6063, 0.5466,                    00000650
 0.5227, 0.5048, 0.4272, 0.3706, 0.3512, 0.3199, 0.3050, 0.2826,                    00000660
 PUMWK(1,7)=                                                                        00000670
 1.0000, 0.9083, 0.8951, 0.8936, 0.8773, 0.8434, 0.8345, 0.8048,                    00000680
 0.7887, 0.7680, 0.7413, 0.7191, 0.6984, 0.6926, 0.6053, 0.5625,                    00000690
 0.5092, 0.4797, 0.4161, 0.3969, 0.3615, 0.3229, 0.3068, 0.2949,                    00000700
 PUMWK(1,8)=                                                                        00000710
 1.0000, 0.9166, 0.9017, 0.8868, 0.8644, 0.8436, 0.8257, 0.8093,                    00000720
 0.7944, 0.7750, 0.7512, 0.7259, 0.7155, 0.7139, 0.6007, 0.5546,                    00000730
 0.5158, 0.4875, 0.4086, 0.3847, 0.3639, 0.3192, 0.3028, 0.2954,                    00000740
 PUMWK(1,9)=                                                                        00000750
 1.0000, 0.9285, 0.8944, 0.8912, 0.8652, 0.8523, 0.8458, 0.8409,                    00000760
```

GENERAL DATA—ORDER OF DATA WITHIN SET IS ARBITRARY

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

```
52    0.8295, 0.8100, 0.8003, 0.7922, 0.7678, 0.7646, 0.6005, 0.5860,      00000770
53    0.5649, 0.5405, 0.4040, 0.3798, 0.3407, 0.3262, 0.3131, 0.2969,      00000780
54    PUMWK(1,10)=                                                         00000790
55    1.0000, 0.9450, 0.9317, 0.9133, 0.8933, 0.8866, 0.8717, 0.8566,      00000800
56    0.8333, 0.8300, 0.8283, 0.8049, 0.7850, 0.7666, 0.6883, 0.6399,      00000810
57    0.5816, 0.5515, 0.4348, 0.3966, 0.3582, 0.3432, 0.3281, 0.2848,      00000820
58    PUMWK(1,11)=                                                         00000830
59    1.0000, 0.9436, 0.9309, 0.8949, 0.8855, 0.8776, 0.8651, 0.8572,      00000840
60    0.8321, 0.8196, 0.7898, 0.7772, 0.7490, 0.7318, 0.6784, 0.6392,      00000850
61    0.5764, 0.5466, 0.4305, 0.4164, 0.3787, 0.3599, 0.3223, 0.3129,      00000860
62    PUMWK(1,12)=                                                         00000870
63    1.0000, 0.8855, 0.8447, 0.8447, 0.8381, 0.8355, 0.8263, 0.8013,      00000880
64    0.7842, 0.7710, 0.7276, 0.7211, 0.7170, 0.7079, 0.6236, 0.5973,      00000890
65    0.5618, 0.5328, 0.4512, 0.4447, 0.4104, 0.3894, 0.3604, 0.3289,      00000900
66    PUMWE=                                                               00000910
67    0.8227, 0.8073, 0.7780, 0.7502, 0.7256, 0.6916, 0.6855, 0.6824,      00000920
68    0.6654, 0.6408, 0.6207, 0.6069, 0.5791, 0.5636, 0.5436, 0.5297,      00000930
69    0.5251, 0.5097, 0.4696, 0.4234, 0.4110, 0.3864, 0.3693, 0.3031,      00000940
70    PUMWE(1,2)=                                                          00000950
71    0.8183, 0.7599, 0.7461, 0.7169, 0.7077, 0.6786, 0.6571, 0.6479,      00000960
72    0.6341, 0.6295, 0.6095, 0.5788, 0.5650, 0.5557, 0.5481, 0.5205,      00000970
73    0.4959, 0.4713, 0.4498, 0.4437, 0.4390, 0.4207, 0.3608, 0.3331,      00000980
74    PUMWE(1,3)=                                                          00000990
75    0.7900, 0.7457, 0.7406, 0.7201, 0.7049, 0.6776, 0.6537, 0.6333,      00001000
76    0.6230, 0.6061, 0.5822, 0.5669, 0.5533, 0.5328, 0.5175, 0.5124,      00001010
77    0.5021, 0.4783, 0.4545, 0.4391, 0.4085, 0.3983, 0.3864, 0.3080,      00001020
78    PUMWE(1,4)=                                                          00001030
79    0.7745, 0.7255, 0.7075, 0.6929, 0.6839, 0.6584, 0.6493, 0.6384,      00001040
80    0.6149, 0.6058, 0.5931, 0.5732, 0.5459, 0.5242, 0.5188, 0.5169,      00001050
81    0.4988, 0.4643, 0.4407, 0.4172, 0.3845, 0.3664, 0.3464, 0.3083,      00001060
82    PUMWE(1,5)=                                                          00001070
83    0.7478, 0.6877, 0.6603, 0.6501, 0.6449, 0.6330, 0.6072, 0.5918,      00001080
84    0.5781, 0.5557, 0.5352, 0.5232, 0.5044, 0.4854, 0.4838, 0.4804,      00001090
85    0.4580, 0.4341, 0.4169, 0.3963, 0.3620, 0.3414, 0.3226, 0.3019,      00001100
86    PUMWE(1,6)=                                                          00001110
87    0.7352, 0.6734, 0.6456, 0.6240, 0.6162, 0.6023, 0.5838, 0.5730,      00001120
88    0.5591, 0.5405, 0.5297, 0.5097, 0.4988, 0.4819, 0.4556, 0.4371,      00001130
89    0.4231, 0.4031, 0.3907, 0.3753, 0.3397, 0.3166, 0.3057, 0.2748,      00001140
90    PUMWE(1,7)=                                                          00001150
91    0.7842, 0.7075, 0.6691, 0.6514, 0.6189, 0.6056, 0.5982, 0.5894,      00001160
92    0.5775, 0.5524, 0.5362, 0.5258, 0.5200, 0.5067, 0.4890, 0.4801,      00001170
93    0.4343, 0.4151, 0.4018, 0.3827, 0.3501, 0.3294, 0.2970, 0.2896,      00001180
94    PUMWE(1,8)=                                                          00001190
95    0.7887, 0.7404, 0.6966, 0.6709, 0.6634, 0.6301, 0.6211, 0.6090,      00001200
96    0.5969, 0.5788, 0.5531, 0.5259, 0.5169, 0.5063, 0.4942, 0.4836,      00001210
97    0.4353, 0.4156, 0.4035, 0.4005, 0.3476, 0.3432, 0.3069, 0.2932,      00001220
98    PUMWE(1,9)=                                                          00001230
99    0.7859, 0.7322, 0.6899, 0.6802, 0.6525, 0.6395, 0.6362, 0.6281,      00001240
100   0.6151, 0.5858, 0.5533, 0.5484, 0.5158, 0.5045, 0.4866, 0.4719,      00001250
101   0.4638, 0.4395, 0.4183, 0.3939, 0.3695, 0.3418, 0.3206, 0.3076,      00001260
102   PUMWE(1,10)=                                                         00001270
103   0.7964, 0.7564, 0.7230, 0.7164, 0.6947, 0.6696, 0.6496, 0.6446,      00001280
104   0.6380, 0.6296, 0.6213, 0.5646, 0.5429, 0.5363, 0.5279, 0.5079,      00001290
105   0.4963, 0.4495, 0.4245, 0.3979, 0.3678, 0.3612, 0.3311, 0.2962,      00001300
106   PUMWE(1,11)=                                                         00001310
107   0.7812, 0.7763, 0.7405, 0.7110, 0.6996, 0.6752, 0.6686, 0.6442,      00001320
108   0.6442, 0.5936, 0.5855, 0.5855, 0.5545, 0.5348, 0.5153, 0.5006,      00001330
109   0.4859, 0.4696, 0.4272, 0.3881, 0.3864, 0.3684, 0.3472, 0.2836,      00001340
110   PUMWE(1,12)=                                                         00001350
111   0.8240, 0.7954, 0.7302, 0.7195, 0.7018, 0.6705, 0.6556, 0.6528,      00001360
112   0.6311, 0.6000, 0.5918, 0.5632, 0.5632, 0.5388, 0.5266, 0.5198,      00001370
113   0.4980, 0.4927, 0.4601, 0.3976, 0.3908, 0.3800, 0.3650, 0.3230,      00001380
114   PUANR=                                                               00001390
115   0.9670, 0.9500, 0.9100, 0.8520, 0.8410, 1.0000, 0.9630, 0.9940,      00001400
```

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

```
116     0.9420, 0.8860, 0.9630, 0.9770,                                                 00001410
117     PUMR=                                                                           00001420
118     1.0000, 0.9980, 0.9140, 0.9140, 1.0000, 0.9350, 0.9350, 0.9160,                 00001430
119     1.0000, 0.9380, 0.9340, 0.8570, 1.0000, 0.9330, 0.9090, 0.7620,                 00001440
120     1.0000, 0.9320, 0.9310, 0.8780, 1.0000, 0.8950, 0.8770, 0.8500,                 00001450
121     1.0000, 0.9150, 0.8770, 0.8760, 1.0000, 0.9710, 0.8950, 0.8920,                 00001460
122     1.0000, 0.8950, 0.8750, 0.8380, 1.0000, 0.9650, 0.9300, 0.8830,                 00001470
123     1.0000, 0.9600, 0.9200, 0.8780, 1.0000, 0.9580, 0.9150, 0.8340,                 00001480
124     POOLMW=5000,                                                                    00001490
125     GRMW=5*1.035,                                                                   00001500
126     XLF=5*.60,                                                                      00001510
127     KPRINT=1,3*0,1,                                                                 00001520
128     LPRINT=5*1,                                                                     00001530
129     M7=7,                                                                           00001540
130     IYREAD=0$                                                                       00001550
```

HONEYWELL PAGE PRINTING SYSTEM- P118B-02

GENERAL ELECTRIC COMPANY
.LDMD6 EUSED PROGRAM TO CREATE OR MODIFY A LOAD MODEL

LMFILE1 CREATE LOAD MODEL FROM SCRATCH
GENERAL DATA ONLY, ISPEC=1

JOB NUMBER 1128NT
06/01/83

NUMBER OF WEEKDAYS AND WEEKEND DAYS IN MONTH

RELIABILITY LOAD MODEL

PRODUCTION COST LOAD MODEL

WEEKDAY LOAD SHAPE

WEEKEND DAY LOAD SHAPE

MW LOAD MODEL.
PRINTED FOR EACH YEAR
THAT LPRINT(N)=1 IS INPUT.

1985	JAN.	22	9		4835.	4825.	4419.	4419.				
	4835.	4597.	4397.	4389.	4323.	4278.	4241.	4226.	4219.	4018.	4003.	3847.
	3728.	3535.	3380.	3156.	2956.	2770.	2235.	2124.	1998.	1866.	1745.	1642.
	3978.	3903.	3761.	3627.	3508.	3343.	3314.	3299.	3217.	3098.	3000.	2934.
	2799.	2724.	2627.	2560.	2538.	2463.	2269.	2046.	1986.	1867.	1784.	1464.
	MONTHLY MWH =		2428629.		MONTHLY LOAD FACTOR =		67.514					
1985	FEB.	19	9		4750.	4441.	4441.	4351.				
	4750.	4564.	4549.	4274.	4177.	4147.	4132.	4124.	4067.	4027.	3886.	3700.
	3618.	3477.	3268.	3112.	2881.	2777.	2226.	2122.	1958.	1906.	1727.	1675.
	3887.	3609.	3544.	3405.	3361.	3223.	3121.	3077.	3011.	2989.	2894.	2748.
	2683.	2639.	2603.	2471.	2354.	2238.	2135.	2106.	2084.	1997.	1712.	1581.
	MONTHLY MWH =		2131438.		MONTHLY LOAD FACTOR =		66.774					
1985	MARCH	21	10		4550.	4268.	4250.	3899.				
	4550.	4314.	4253.	4214.	4100.	4024.	3826.	3765.	3734.	3719.	3704.	3544.
	3505.	3277.	3071.	3041.	2736.	2598.	2103.	2065.	1890.	1829.	1630.	1524.
	3595.	3393.	3370.	3276.	3207.	3083.	2974.	2881.	2834.	2757.	2648.	2579.
	2517.	2423.	2354.	2330.	2284.	2175.	2067.	1997.	1857.	1811.	1757.	1400.
	MONTHLY MWH =		2232969.		MONTHLY LOAD FACTOR =		65.963					
1985	APRIL	22	8		4260.	3975.	3872.	3246.				
	4260.	3930.	3899.	3884.	3764.	3669.	3674.	3554.	3486.	3351.	3321.	3291.
	3261.	3231.	2976.	2825.	2487.	2450.	1939.	1826.	1683.	1638.	1541.	1375.
	3299.	3090.	3014.	2951.	2913.	2804.	2766.	2719.	2619.	2580.	2526.	2441.
	2325.	2232.	2209.	2201.	2124.	1977.	1876.	1776.	1637.	1560.	1474.	1312.
	MONTHLY MWH =		2020773.		MONTHLY LOAD FACTOR =		65.883					
1985	MAY	22	9		4205.	3919.	3915.	3692.				
	4205.	3965.	3824.	3746.					3429.	3351.	3252.	3175.
	3118.	2991.	2632.	2484.					1495.	1446.	1340.	1298.
	3144.	2892.	2776.	2733.					2430.	2336.	2250.	2199.
	2120.	2040.	2034.	2019.					1521.	1434.	1355.	1268.
	MONTHLY MWH =		1972600.		MONTHLY LOAD FACTOR =		63.052					
1985	JUNE	20	10		5000.	4475.	4385.	4250.				
	5000.	4590.	4507.	4388.	4284.	4157.	4015.	3933.	3903.	3821.	3665.	3560.
	3448.	3358.	3030.	2732.	2612.	2523.	2134.	1851.	1754.	1598.	1523.	1411.
	3676.	3367.	3228.	3120.	3081.	3011.	2919.	2864.	2795.	2702.	2648.	2548.
	2493.	2409.	2277.	2185.	2115.	2014.	1952.	1875.	1697.	1582.	1527.	1373.
	MONTHLY MWH =		2150497.		MONTHLY LOAD FACTOR =		59.736					

HONEYWELL PAGE PRINTING SYSTEM- P1128-02

1985	JULY	22	9		4815.	4406.	4223.	4218.				
	4815.	4373.	4310.	4302.	4224.	4061.	4018.	3875.	3797.	3697.	3569.	3462.
	3362.	3334.	2913.	2707.	2450.	2308.	2002.	1909.	1739.	1553.	1475.	1418.
	3776.	3406.	3221.	3136.	2980.	2915.	2880.	2837.	2780.	2659.	2581.	2531.
	2503.	2439.	2354.	2311.	2090.	1998.	1934.	1842.	1685.	1585.	1429.	1393.
	MONTHLY MWH =		2198193.		MONTHLY LOAD FACTOR =		61.362					
1985	AUG.	22	9		4970.	4826.	4448.	4433				
	4970.	4555.	4481.	4407.	4296.	4192.	4103.	4022.	3948.	3851.	3733.	3607.
	3555.	3547.	2984.	2755.	2562.	2421.	2029.	1910.	1807.	1584.	1503.	1466.
	3920.	3680.	3462.	3334.	3297.	3131.	3086.	3026.	2966.	2876.	2748.	2613.
	2568.	2515.	2455.	2403.	2162.	2064.	2004.	1989.	1726.	1704.	1524.	1456.
	MONTHLY MWH =		2286771.		MONTHLY LOAD FACTOR =		61.843					
1985	SEPT.	20	10		4710.	4215.	4121.	3947.				
	4710.	4373.	4212.	4197.	4075.	4014.	3983.	3960.	3906.	3815.	3769.	3731.
	3616.	3601.	2827.	2759.	2059.	2544.	1901.	1787.	1603.	1534.	1473.	1396.
	3702.	3449.	3249.	3203.	3073.	3012.	2996.	2958.	2897.	2759.	2605.	2582.
	2429.	2375.	2291.	2222.	2184.	2069.	1969.	1854.	1739.	1609.	1509.	1447.
	MONTHLY MWH =		2130709.		MONTHLY LOAD FACTOR =		62.830					
1985	OCT.	23	8		4430.	4275.	4120.	3912.				
	4430.	4186.	4127.	4046.	3957.	3927.	3861.	3794.	3691.	3676.	3669.	3565.
	3477.	3395.	3048.	2834.	2575.	2442.	1924.	1755.	1585.	1518.	1451.	1259.
	3528.	3351.	3203.	3173.	3077.	2966.	2877.	2855.	2826.	2789.	2752.	2500.
	2404.	2375.	2338.	2249.	2198.	1990.	1879.	1761.	1628.	1599.	1465.	1311.
	MONTHLY MWH =		2179237.		MONTHLY LOAD FACTOR =		66.119					
1985	NOV.	20	10		4815.	4622.	4430.	4228.				
	4815.	4543.	4482.	4309.	4263.	4225.	4165.	4127.	4006.	3946.	3802.	3741.
	3606.	3523.	3265.	3077.	2774.	2630.	2071.	2003.	1821.	1731.	1550.	1504.
	3761.	3738.	3565.	3423.	3368.	3251.	3219.	3101.	3101.	2858.	2818.	2818.
	2669.	2574.	2480.	2409.	2339.	2260.	2056.	1867.	1859.	1772.	1670.	1364.
	MONTHLY MWH =		2243027.		MONTHLY LOAD FACTOR =		64.700					
1985	DEC.	21	10		4885.	4690.	4470.	4074.				
	4885.	4325.	4126.	4126.	4094.	4081.	4036.	3914.	3830.	3766.	3554.	3522.
	3502.	3457.	3045.	2917.	2743.	2601.	2202.	2171.	2003.	1900.	1759.	1605.
	4025.	3885.	3567.	3514.	3428.	3275.	3202.	3188.	3082.	2930.	2890.	2750.
	2750.	2631.	2571.	2538.	2432.	2406.	2246.	1941.	1908.	1855.	1782.	1576.
	MONTHLY MWH =		2305164.		MONTHLY LOAD FACTOR =		63.426					
1985	POOL PEAK		EDISON	5000.								
	COMPANY PEAKS		EDISON	5000.								
	ANNUAL MWH=		26280000.		ANNUAL LOAD FACTOR=		60.000					

ANNUAL QUANTITIES

HONEYWELL PAGE PRINTING SYSTEM- 8118-02

OCP Input Data
Program

GENERAL ELECTRIC COMPANY
.LDMD6 EUSED PROGRAM TO CREATE OR MODIFY A LOAD MODEL

LMFILE1 CREATE LOAD MODEL FROM SCRATCH
GENERAL DATA ONLY, ISPEC=1

JOB NUMBER 1128NT
06/01/83

RELIABILITY LOAD MODEL

MONTH/ANNUAL RATIOS

PRODUCTION COST LOAD MODEL

1985	JAN.		0.9670		1.0000	0.9980	0.9140	0.9140				
0.9670		1.0000	0.9508	0.9094	0.9078	0.8940	0.8848	0.8771	0.8741	0.8725	0.8310	0.8280	0.7956
			2	0.6990				1623	0.4394	0.4133	0.3901	0.3609	0.3395
			73	0.7780				3854	0.6823	0.6653	0.6407	0.6205	0.6067
			34	0.5434	0.5295	0.5249	0.5095	0.4693	0.4231	0.4107	0.3861	0.3690	0.3027
1985	FEB.		0.9500		1.0000	0.9350	0.9350	0.9160					
0.9500		1.0000	0.9608	0.9577	0.8997	0.8793	0.8730	0.8699	0.8683	0.8605	0.8479	0.8182	0.7789
		0.7617	0.7320	0.6881	0.6552	0.6066	0.5847	0.4687	0.4468	0.4123	0.4014	0.3636	0.3526
		0.8183	0.7599	0.7460	0.7168	0.7076	0.6785	0.6570	0.6478	0.6340	0.6294	0.6094	0.5786
		0.5648	0.5555	0.5479	0.5203	0.4957	0.4711	0.4495	0.4434	0.4387	0.4204	0.3605	0.3328
1985	MARCH		0.9100		1.0000	0.9380	0.9340	0.8570					
0.9100		1.0000	0.9481	0.9347	0.9262	0.9011	0.8844	0.8409	0.8275	0.8207	0.8174	0.8141	0.7788
		0.7704	0.7202	0.6750	0.6683	0.6012	0.5711	0.4621	0.4538	0.4153	0.4019	0.3582	0.3349
		0.7900	0.7457	0.7406	0.7200	0.7048	0.6775	0.6536	0.6332	0.6229	0.6060	0.5820	0.5667
		0.5531	0.5326	0.5173	0.5122	0.5019	0.4781	0.4542	0.4388	0.4082	0.3980	0.3861	0.3076
1985	APRIL		0.8520		1.0000	0.9330	0.9090	0.7620					
0.8520		1.0000	0.9224	0.9153	0.9118	0.8836	0.8660	0.8624	0.8342	0.8184	0.7867	0.7795	0.7725
		0.7654	0.7584	0.6985	0.6632	0.5838	0.5750	0.4551	0.4286	0.3951	0.3846	0.3617	0.3228
		0.7745	0.7255	0.7074	0.6928	0.6838	0.6583	0.6492	0.6383	0.6148	0.6057	0.5930	0.5730
		0.5457	0.5240	0.5166	0.5167	0.4986	0.4641	0.4405	0.4169	0.3842	0.3661	0.3461	0.3080
1985	MAY		0.8410		1.0000	0.9320	0.9310	0.8780					
0.8410		1.0000	0.9430	0.9094	0.8909	0.8624	0.8573	0.8540	0.8373	0.8155	0.7970	0.7735	0.7549
		0.7415	0.7113	0.6259	0.5906	0.5737	0.5688	0.4143	0.4026	0.3556	0.3440	0.3187	0.3087
		0.7478	0.6877	0.6602	0			71	0.5917	0.5780	0.5556	0.5351	0.5230
		0.5042	0.4852	0.4836	0			67	0.3961	0.3617	0.3411	0.3223	0.3016
1985	JUNE		1.0000		1			00					
1.0000		1.0000	0.9180	0.9014	0.8775	0.8568	0.8313	0.8030	0.7866	0.7806	0.7643	0.7330	0.7120
		0.6895	0.6716	0.6061	0.5463	0.5224	0.5045	0.4269	0.3703	0.3508	0.3195	0.3046	0.2822
		0.7352	0.6734	0.6455	0.6239	0.6161	0.6022	0.5837	0.5729	0.5590	0.5404	0.5296	0.5096
		0.4987	0.4817	0.4554	0.4369	0.4229	0.4029	0.3905	0.3751	0.3395	0.3163	0.3054	0.2745
1985	JULY		0.9630		1.0000	0.9150	0.8770	0.8760					
0.9630		1.0000	0.9082	0.8950	0.8935	0.8772	0.8433	0.8344	0.8047	0.7886	0.7679	0.7412	0.7189
		0.6982	0.6924	0.6051	0.5622	0.5089	0.4794	0.4158	0.3966	0.3611	0.3225	0.3064	0.2945
		0.7842	0.7075	0.6690	0.6513	0.6188	0.6055	0.5981	0.5893	0.5774	0.5523	0.5361	0.5257

P.U. LOAD MODEL.
PRINTED FOR EACH YEAR
THAT KPRINT(N)=1 IS INPUT.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

	0.5198	0.5065	0.4888	0.4799	0.4341	0.4149	0.4016	0.3825	0.3499	0.3291	0.2967	0.2893
1985 AUG.		0.9940		1.0000	0.9710	0.8950	0.8920					
0.9940	1.0000	0.9166	0.9016	0.8867	0.8643	0.8435	0.8256	0.8092	0.7943	0.7749	0.7511	0.7257
	0.7153	0.7137	0.6005	0.5543	0.5155	0.4872	0.4093	0.3843	0.3635	0.3188	0.3024	0.2950
	0.7887	0.7404	0.6965	0.6708	0.6633	0.6300	0.6210	0.6089	0.5968	0.5787	0.5530	0.5257
	0.5167	0.5061	0.4940	0.4834	0.4351	0.4154	0.4033	0.4003	0.3473	0.3429	0.3066	0.2929
1985 SEPT.		0.9420		1.0000	0.8950	0.8750	0.8380					
0.9420	1.0000	0.9285	0.8943	0.8911	0.8651	0.8522	0.8457	0.8408	0.8294	0.8099	0.8002	0.7921
	0.7677	0.7645	0.6002	0.5857	0.5646	0.5402	0.4036	0.3794	0.3403	0.3258	0.3127	0.2965
	0.7859	0.7322	0.6898	0.6801	0.6524	0.6394	0.6361	0.6280	0.6150	0.5857	0.5532	0.5482
	0.5156	0.5043	0.4864	0.4717	0.4636	0.4393	0.4161	0.3937	0.3692	0.3415	0.3203	0.3073
1985 OCT.		0.8860		1.0000	0.9650	0.9300	0.8830					
0.8800	1.0000	0.9450	0.9317	0.9132	0.8932	0.8865	0.8716	0.8565	0.8332	0.8299	0.8282	0.8048
	0.7849	0.7664	0.6881	0.6396	0.5813	0.5512	0.4344	0.3962	0.3578	0.3427	0.3276	0.2843
	0.7964	0.7564	0.7229	0.7163	0.6946	0.6695	0.6495	0.6445	0.6379	0.6295	0.6212	0.5644
	0.5427	0.5361	0.5277	0.5077	0.4961	0.4493	0.4242	0.3976	0.3675	0.3609	0.3308	0.2959
1985 NOV.		0.9630		1.0000	0.9600	0.9200	0.8780					
0.9630	1.0000	0.9436	0.9309	0.8948	0.8854	0.8775	0.8650	0.8571	0.8320	0.8195	0.7897	0.7770
	0.7488	0.7316	0.6782	0.6390	0.5761	0.5463	0.4301	0.4160	0.3783	0.3595	0.3218	0.3124
	0.7812	0.7763	0.7405	0.7109	0.6995	0.6751	0.6685	0.6441	0.6441	0.5935	0.5854	0.5854
	0.5543	0.5346	0.5151	0.5004	0.4857	0.4694	0.4269	0.3878	0.3861	0.3681	0.3469	0.2832
1985 DEC.		0.9770		1.0000	0.9580	0.9150	0.8340					
0.9770	1.0000	0.8854	0.8446	0.8446	0.8380	0.8354	0.8262	0.8012	0.7841	0.7709	0.7274	0.7209
	0.7168	0.7077	0.6234	0.5971	0.5615	0.5325	0.4509	0.4444	0.4100	0.3890	0.3600	0.3285
	0.8240	0.7954	0.7301	0.7194	0.7017	0.6704	0.6555	0.6527	0.6310	0.5999	0.5916	0.5630
	0.5630	0.5386	0.5264	0.5196	0.4978	0.4925	0.4599	0.3973	0.3905	0.3797	0.3647	0.3227

HONEYWELL PAGE PRINTING SYSTEM- 51182-02

GENERAL ELECTRIC COMPANY
.LDMD6 EUSED PROGRAM TO CREATE OR MODIFY A LOAD MODEL

&MFILE1 CREATE LOAD MODEL FROM SCRATCH
GENERAL DATA ONLY, ISPEC=1

JOB NUMBER 1128NT
06/01/83

YEAR	(MW) POOL PEAK	(MWH) TOTAL ENERGY	LOAD FACTOR
1985	5000.	26280000.	60.00
1986	5175.	27199800.	60.00
1987	5356.	28151793.	60.00
1988	5544.	29216934.	60.00
1989	5738.	30156905.	60.00

ALL AVAILABLE DATA HAVE BEEN PROCESSED

HONEYWELL PAGE PRINTING SYSTEM- PI18B-02

REMOTE TERMINAL OUTPUT

REPORT 07 WILL PRINT IF M7=7 INPUT.

```
GENERAL ELECTRIC COMPANY
.LDMD6, EUSED PROGRAM TO CREATE OR MODIFY A LOAD MODEL

JOB # 1128NT                    06/01/83

NAMELIST RECORD     1 HAS BEEN READ

 ********** END OF NAMELIST CHECKING
```

PROGRAM WILL CHECK ALL NAMELIST DATA FOR ERRORS PRIOR TO EXECUTION.

END OF NAMELIST DATA WILL BE PRINTED IF NO FATAL DATA ERRORS OCCURRED.

```
GENERAL ELECTRIC COMPANY
.LDMD6, EUSED PROGRAM TO CREATE OR MODIFY A LOAD MODEL

JOB # 1128NT                    06/01/83

LMFILE1     CREATE LOAD MODEL FROM SCRATCH
GENERAL DATA ONLY,  ISPEC=1
```

YEAR	(MW) POOL PEAK	(MWH) TOTAL ENERGY	LOAD FACTOR
1985	5000.	26280000.	60.00
1986	5175.	27199800.	60.00
1987	5356.	28151793.	60.00
1988	5544.	29214934.	60.00
1989	5738.	30156905.	60.00

```
ALL AVAILABLE DATA HAVE BEEN PROCESSED
```

INDICATES PROGRAM EXECUTED NORMALLY.

MERGING TWO LOAD MODELS

The setup listed below can be used to merge two Load Model Background files onto one. The two files being merged must be sequential with no overlapping years. The Load Model Program can be used to get the Load Models into the necessary format.

```
100  BCR FILE3;SIZE(1,150)
200  BEN
300  ##NORM
400  $:UTILITY
500  $:FUTIL:F1,F3,RWD/F1,F3/,MCOPY/1F/,HOLD/F3/
600  $:FUTIL:F2,F3,RWD/F2/,SKIP/1R/,MCOPY/1F/
700  $:PRMFL:F1,R/W,S,AQ43XXX/FILE1
800  $:PRMFL:F2,R/W,S,AQ43XXX/FILE2
900  $:PRMFL:F3,R/W,S,AQ43XXX/FILE3
```

The above file would be keyed into Foreground and submitted to Background with the BACK command. If FILE1 contained the years 1983 through 1994 and FILE2 contained the years 1995 through 2000, FILE3 would have 1983 through 2000.

GENERATION MODEL PROGRAM (.GNMD6)

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INTRODUCTION

The .GNMD6 Generation Model Program is an auxiliary program to OGP. It must be executed in order to develop a binary Generation Model, which is stored permanently and will be input to the OGP Program. Figure 4-1 shows the various files used by the Generation Model Program. The .GNMD6 program is used either to create a Generation Model from scratch or to modify an existing Generation Model. If a Generation Model is being created from scratch, the user must input all of the information necessary to describe the units to be included on the Generation Model. The program will read the input data and store it in binary format on the Generation Model file. This file will be input to the Data Preparation Program.

The .GNMD6 program can also be used to change an existing Generation Model. Characteristics of units on the existing Generation Model can be changed, and additional units can be appended to the Generation Model. If the Generation Model Program is being used to modify an existing Generation Model, the user must input only the data to be changed or the characteristics of the additional units to be added. The program will read the existing Generation Model, make the requested changes, and store the entire new Generation Model in a new file. The original Generation Model file will not be changed by this process.

Normally only one binary Generation Model is required to evaluate many OGP scenarios, since all of the Generation Model data may be overridden by input to the Data Preparation Program.

The .GNMD6 program is a batch program written in FORTRAN. Execution of this program is the initial step in developing the thermal, conventional hydro and energy storage generation of the utility system to be studied by OGP. The user has the option of inputting the present and future generating units and their characteristics in as much or as little detail as desired. Section 2 of the Descriptive Handbook discusses the unit characteristics that can be input to the Generation Model. Any data that is not defined may be added to or overridden in the OGP Data Preparation Program. The Data Preparation Program will develop a complete list of generating units by reading the binary Generation Model and/or additional input data to the Data Preparation Program. Any characteristics that were not uniquely defined will then be assigned values from standard tables which the user inputs to the Data Preparation Program. The user will subsequently have the option of further overriding the characteristics of the thermal units through input to the OGP Generation Planning Program.

Each of the generating units on the system must be assigned to one of the ten unit types available in OGP. Types 1 through 6 are used to model thermal units, Type 7 is used to model conventional hydro, and Types 8 through 10 are used to model energy storage. Some of the thermal types have been given features that make them suitable for modeling specific types of generation. This is described in more detail in Section 2 of the Descriptive Handbook and is summarized in Table 4-1.

TABLE 4-1
UNIT TYPE DESIGNATIONS IN OGP

Unit Type No.	Generation Category
Types 1-6	Thermal units Type 1 is recommended for nuclear units Type 2 is reserved for fossil units subject to lumping by pool Type 3 is reserved for gas turbines subject to lumping by company Type 4 is free type Type 5 is free type (possible second type of nuclear unit) Type 6 is free type (possible second type of nuclear unit)
Type 7	Conventional hydro
Types 8-10	Energy storage

PROGRAM INPUT/OUTPUT

The input requirements of the .GNMD6 Generation Model Program (see Figure 4-1) are as follows:

1. Data is supplied in the form of NAMELIST data. The NAMELIST name is INPUT. The program requires one set of general data and sets of generating unit data. The generating unit data sets contain data that describe the units to be included on the Generation Model or the changes to be made to the existing Generation Model. There is no limit to the number of sets of generating unit data. However, the maximum number of generating units defined per set is 25. File 15 is assigned to the input data file.

2. If the user is modifying an existing Generation Model, the existing Generation Model binary file is also required as input. File 01 is assigned to the input Generation Model.

The output capabilities of the .GNMD6 Generation Model Program (see Figure 4-1) are as follows:

1. File 02 is the binary Generation Model which defines the generating units and their characteristics. This binary Generation Model will become input to the Data Preparation Program.

2. Report 06 is the bulk output. It is usually printed on a high-speed printer and is a formatted listing of all the generating units and their characteristics as defined by the user's input. If the user is modifying an existing Generation Model, both the original model and the modified model are printed. System abort messages and all programmed error messages are written to Report 06.

   Report 07 is summary output. It is usually printed via a terminal or CRT. It is a list of NAMELIST data sets that were successfully read by the program. Report 07 provides the user with verification of the successful execution of a run.

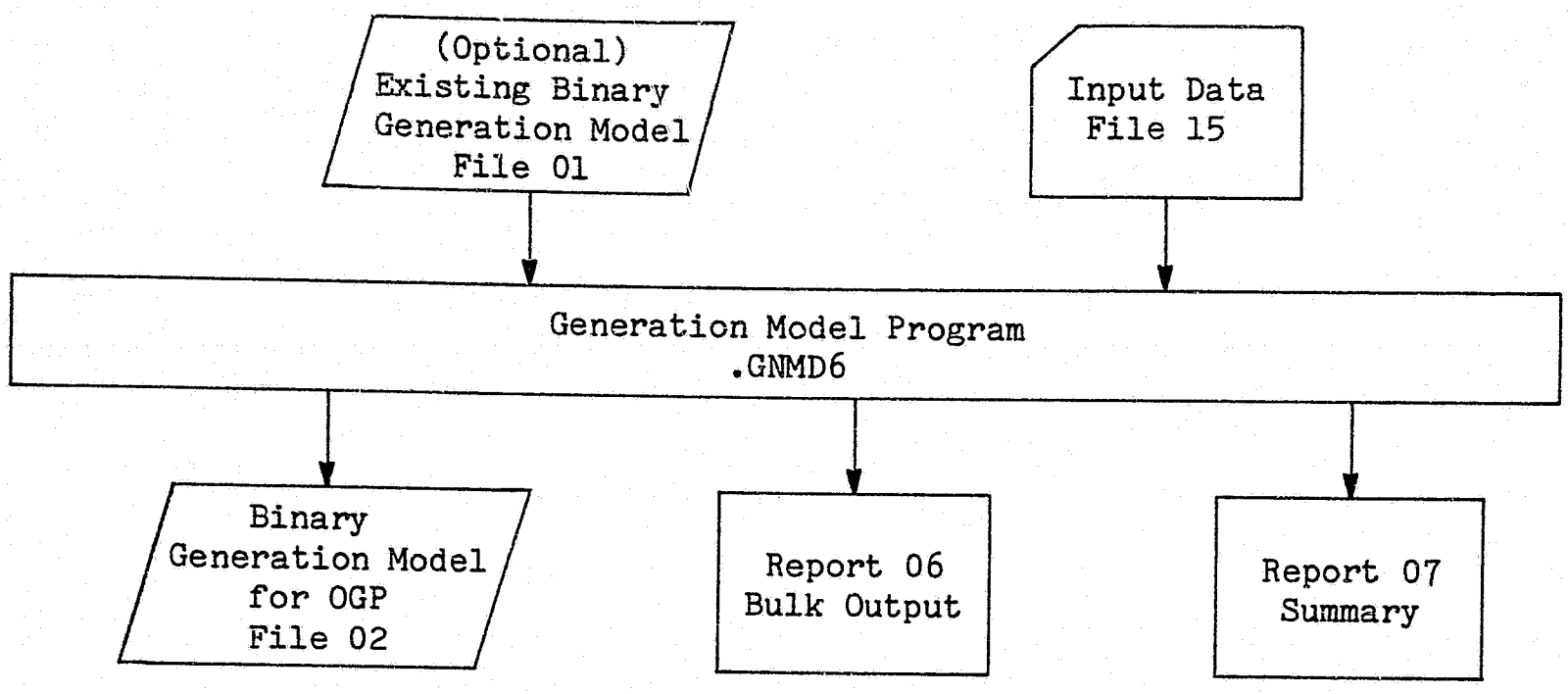

Figure 4-1. File Structure for the Generation Model Program (.GNMD6)

PROGRAM OPTIONS

The Generation Model Program can be used to create a Generation Model from scratch or to modify an existing Generation Model. If a Generation Model is being created from scratch, the program will perform the following sequence:

a. Read the general data (card image input)

b. Read a set of data describing generating units (card image input)

c. Write a record on the binary Generation Model file

d. Repeat Steps b and c until a set of input data contains the variable KMORE=1, indicating that it is the last NAMELIST data set

e. End the Generation Model file; rewind the file

f. Read and print all of the records on the Generation Model file

g. End

If the Generation Model Program is being used to modify an existing Generation Model, the program will read the existing binary Generation Model file, read the data changes from the card image input file, and write a new, updated binary Generation Model file. The original binary file will not be altered. To modify an existing Generation Model, the program will execute the following steps:

a. Read the general data (card image input)

b. Read one record from the binary Generation Model file

c. Print the record

PROGRAM OPTIONS (Continued)

d. If the current record is to be modified (as indicated by the NREAD variable in the last NAMELIST data set that had been read), read the next set of NAMELIST data (card image input)

e. Write the modified record on the new binary Generation Model file

f. Repeat Steps b through e until all of the records have been processed

g. If new records are to be added (as indicated by MANUAL=1, in the general data), read the NAMELIST data set(s) (card image input) and write additional record(s) on the new binary file. (Each NAMELIST data set read will become a new record.) Data for the last new record to be added must contain the variable KMORE=1,

h. End the new Generation Model file; rewind the new file

i. Read and print all of the records on the new file

j. End

GENERATION MODEL PROGRAM INPUT DATA

This section defines the actual NAMELIST variables used to input data to the Generation Model Program. As shown below, the data required depends on whether the Generation Model is being created from scratch or whether an existing one is being modified. The NAMELIST data sets must be in the order shown below for the two options. The order of the variables within a data set is irrelevant. However, when an existing Generation Model is being modified, the records containing units to be changed must be modified in the same sequence as they appear on the existing Generation Model.

1. Create the Generation Model from scratch.

   - General Data
   - NAMELIST data sets describing the generating units
     - A maximum of 25 units may be included per set
     - Last set must contain KMORE=1,

2. Read the existing Generation Model and create a new Generation Model.

   - General Data
   - Sets of override data (optional)
   - Sets of data describing additional generating units (optional)
     - A maximum of 25 units may be included per set
     - Last set must contain KMORE=1,

NOTE: Unless otherwise stated, the default value for all input data is zero.

GENERAL DATA

Six lines of information, which can include the user's name, address, user ID, mailing instructions, etc., can be supplied immediately before the $INPUT of the general data. These six lines will print as a header page at the beginning of the bulk output. (Do not use a colon as one of the characters.) A maximum of 60 characters per line is allowable.

_____

_____

_____

_____

_____

_____

$INPUT

ID1 = 60H _____ ,
ID2 = 60H _____ ,

or

ID1 = '_____',
ID2 = '_____',

Two lines of identification.
Maximum of 60 characters per line.

NEW = _____, Option describing type of Generation Model to create.
0 = Modify an existing Generation Model.
1 = Create a Generation Model from scratch.

NREAD = _____, First Generation Model record to be modified.
Omit if NEW=1.

MANUAL = _____, Option to add additional records when modifying an existing Generation Model.
0 = No new records will be added.
1 = Generating unit data for new records will be supplied.
Omit if NEW=1.

M7 = _____$ Option tc receive count of NAMELIST data records read by program.
0 = Omit.
7 = Print NAMELIST record count on Report 07.
(Recommended Method: Always input M7=7$.)

CREATING A GENERATION MODEL FROM SCRATCH

The NAMELIST input variables on the following three pages are used to input unit characteristics to the Generation Model Program when creating a Generation Model from scratch. The Generation Model is stored in records containing a maximum of 25 units each. There is no limit to the number of records that can be stored on a Generation Model. Each NAMELIST data set, which includes everything from a $INPUT to the closing $, describes the units to be included on one record; therefore, each NAMELIST data set can describe a maximum of 25 units.

The following notes pertain to the generating unit data input described on the following pages:

a. All cost data must be relative to the year in which costs are quoted, i.e., value of NYCOST, input data to Data Preparation Program of OGP.

b. Certain data is mandatory as indicated on the following pages. Remaining data that is not input defaults to zero, and the OGP Data Preparation Program will assign a value from the standard tables that were input by the user.

c. If the user desires a value of zero to be assigned to a certain variable, a -1 must be input to inhibit the Data Preparation Program from assigning a value from the standard tables. This will alert the Data Preparation Program to store a zero. Data of this type is preceded by **.

The NAMELIST input variables on the following pages have been grouped according to the unit types to which they refer. The number in parentheses is the dimension of the variable. All of the variables have at least one dimension of 25, corresponding to the 25 units that can appear on a Generation Model record. Some variables have a second dimension when more than one value can be input for each unit. Unless otherwise stated, all input data defaults to zero.

CREATING A GENERATION MODEL FROM SCRATCH (Continued)

Following is the general format of a NAMELIST data set for creating a Generation Model from scratch:

$INPUT	Each NAMELIST data set must begin with $INPUT and end with a closing $.
ID1 = ID2 =	See General Data, page 4-5.
NEW = _____,	
M7 = _____$	
$INPUT	Beginning of the next NAMELIST input data set.
IMAX = _____,	Number of generating units being described by this data set. IMAX $\leq$ 25.
Unit Data	Generating unit data describing the units to be included on the first record of the Generation Model.
KMORE = 0$	0 = More sets of generating unit data will be supplied. 1 = Current set is the last set of data.
$INPUT	
IMAX = _____,	
Unit Data	Generating unit data describing the units to be included on the second record of the Generation Model.
KMORE = 0$	
$INPUT	
IMAX = _____,	
Unit Data	Generating unit data describing the units to be included on the third record of the Generation Model.
KMORE = 1$	

This format continues until all of the units to be included on the Generation Model have been described. The last data set will end with KMORE=1$, informing the program that no additional data is to be read.

GENERATING UNIT DATA

Mandatory Input for all Units (Types 1-10)

NAMEDB(2,25) Hollerith station identification, 12 characters per name.

INSTDB(25) Year of installation-1900 (2 or 3 digits).
e.g., 85 if installed in 1985.

KINDB(25) Type of unit.
Mandatory -
2 = Fossil, subject to lumping.
3 = GT, subject to lumping.
7 = Conventional hydro.
8,9,10 = Energy storage.
Suggested -
1 = First nuclear type.
5,6 = Second nuclear type.
4,5,6 = Fossil, combined cycle, etc.

KCODB(25) Company index in pool list.
May omit if only one company in pool.
(Order of pool list is set by Load Model.)

OPCTDB(25) Percent owned by company.
e.g., 25 if 25% owned.
0 defaults to 100% owned.
May omit if zero.

Mandatory Input for Thermal Units (Types 1-6)

CAPDB(25) Maximum net output of unit, MW.

Mandatory Input for Conventional Hydro (Type 7)

ENGYDB(12,25) Monthly energy, GWh (not MWh).

GMAXDB(12,25) Monthly maximum output, MW.

GMINDB(12,25) Monthly minimum output, MW.

Mandatory Input for Energy Storage (Types 8-10)

GENES(12,25) Monthly generator rating, MW.
Replaces CAPDB that was used in OGP-5.

PONDES(12,25) Monthly storage, MWh.
Replaces HRDB that was used in OGP-5.

GENERATING UNIT DATA (Continued)

Mandatory Input for Energy Storage (Types 8-10) (Continued)

PUMPES(12,25) Monthly pump rating, MW.
Replaces POW1DB that was used in OGP-5.

Optional Input for all Units (Types 1-10)

** DKWDB(25) Plant cost, $/kW.

KRETDB(25) Year of retirement (4 digits).
e.g., 1995.

MINTDB(25) Month of installation.
e.g., 5 if installed in May.
Omit if installed in January.

MRETDB(25) Month of retirement.
e.g., 5 if retired at beginning of May.
Omit if retired at beginning of January.

Optional Input for Thermal Units (Types 1-6)

** FMAXDB(25) Fuel input at maximum rating, MBtu/hr.
If FMAXDB < 1.0, program will interpret the value as per unit and the actual value used will be computed as FMAXDB*Heat Rate*MW*0.001.

** FMINDB(25) Fuel input at minimum rating, MBtu/hr.
If FMINDB < 1.0, program will interpret the value as per unit and the actual value used will be computed as FMINDB*Heat Rate*MW*0.001.

HRDB(25) Net station heat rate, Btu/kWh.

PMAXDB(25) Production cost rating, MW.
Omit if same as CAPDB.
If PMAXDB < 1.0, program will interpret the value as per unit and the actual value used will be computed as PMAXDB*CAPDB.

** PMINDB(25) MW output at minimum rating.
If PMINDB < 1.0, program will interpret the value as per unit and the actual value used will be computed as PMINDB*(Production cost rating).

NOTE: If the user desires a value of zero to be assigned to a certain variable, a -1 must be input to inhibit the Data Preparation Program from assigning a value from the standard tables. This will alert the Data Preparation Program to store a zero. Data of this type is preceded by **.

GENERATING UNIT DATA (Continued)

Optional Input for Thermal Units (Types 1-6) (Continued)

KPLDB(25) Plant index.
Assigns individual units to plants.
Maximum value = 100.

INORDB(25) Original installation year of stretch units (4 digits).
e.g., 1980.

** FORDB(25) Mature forced outage rate, P.U.

** PORDB(25) Mature planned outage rate, P.U.

** MPATDB(25) Manual maintenance pattern (Maximum value = 25).
(Manual maintenance patterns are defined in Data Prep input.)

KFIDB(25) Fuel cost inflation pattern (Maximum value = 20).
(Fuel cost inflation patterns are defined by the Data Prep input.)

KFTDB(25) Fuel type ID (Maximum value = 20).
(Fuel types are defined by the Data Prep input.)

MRDB(25) Minimum uptime rule.
Rule -1 Must run unit.
Rule 1 If committed, must run all week.
Rule 2 If committed for weekday, must run for all weekdays.
If committed for weekend, must run all weekend.
Rule 3 If committed, must run all hours in commitment zone.

** OMDB(25) Fixed O&M, $/kW/yr.

** OMVDB(25) Variable O&M.
$/hr/MW or $/MWh.
(See NDVOM variable in Generation Planning input.)

Optional Input for Nuclear Units (Types 1 and 5 or 6)

FUBCDB(5,25) Nuclear fuel burn-up costs, ¢/MBtu.
Must supply all 5 data entries if this variable is used.

FUICDB(5,25) Nuclear fuel inventory costs, $/kW/yr.
Must supply all 5 data entries if this variable is used.

NOTE: If the user desires a value of zero to be assigned to a certain variable, a -1 must be input to inhibit the Data Preparation Program from assigning a value from the standard tables. This will alert the Data Preparation Program to store a zero. Data of this type is preceded by **.

GENERATING UNIT DATA (Continued)

Optional Input for Non-Nuclear Thermal Units (Types 1-6)

CMBTU(25) Fuel cost, ¢/MBtu.
Replaces FPCTDB and FCDB that were used in OGP-5.

Optional Environmental Input, OGP-6A, for Thermal Units (Types 1-6)

** ELIMDB(25) Energy limit override of ELIMIT input in Data Prep.
0 = No limit.
> 0 and ≤ 1.0 = Capacity factor limit.
< 1.0 = Actual MWh limit.

** HREJDB(25) Heat rejection into atmosphere, p.u.
Override of HREJ (Data Prep input).
1.0 - HREJDB rejected into water.

** PREFDB(25) Precipitator efficiency, p.u.

** SCRMDB(25) Sulfur removal, p.u.

** CFWCDB(2,25) Water consumption coefficients.
(1) = gals/hr.
(2) = gals/MWh.

** CFCODB(3,25) Carbon monoxide coefficients.
(1) = lbs/hr.
(2) = lbs/MWh.
(3) = scalar.

** CFNODB(3,25) Nitrogen oxide coefficients.
(1) = lbs/hr.
(2) = lbs/MWh.
(3) = scalar.

** CFPTDB(3,25) Particulate coefficients.
(1) = lbs/hr.
(2) = lbs/MWh.
(3) = scalar.

NOTE: If the user desires a value of zero to be assigned to a certain variable, a -1 must be input to inhibit the Data Preparation Program from assigning a value from the standard tables. This will alert the Data Preparation Program to store a zero. Data of this type is preceded by **.

MODIFYING AN EXISTING GENERATION MODEL

In addition to being used to create a Generation Model from scratch, the Generation Model Program can be used to modify an existing Generation Model by overriding characteristics of units on the Generation Model, and by including additional units on the Generation Model. The NAMELIST input variables used are the variables used to create a Generation Model from scratch and are listed on pages 4-8 through 4-11.

When modifying the characteristics of units on an existing Generation Model, the variable NREAD indicates the record on the existing Generation Model to be modified by the next NAMELIST input data set. Because the program reads in a record from the existing Generation Model, makes the necessary changes to it, and writes it on the new Generation Model (refer to the steps listed on page 4-3), the records must be modified in the same order as they appear on the existing Generation Model. Within a record, specific units are referred to by their position among the 25 possible units. This position number (from 1 to 25) is the subscript used to indicate that a certain change applies to a certain unit. Examples of data entries if the unit to be modified is the 5th unit in the record follow:

Single subscript	CAPDB(5)=1000,
Double subscript	FUBCDB(1,5)=5*130,
	NAMEDB(1,5)='FLAT STATION',

If a record on the existing Generation Model contains less than the maximum of 25 units, additional units can be appended to that record by setting, in the override data for that record, IMAX equal to the new total number of units to be included on that record, and by inputting the necessary unit characteristics. If IMAX=0, the entire record will be ignored and will not be included on the new Generation Model.

To add records to an existing Generation Model, the variable MANUAL=1, must appear in the general data. The NAMELIST input data sets describing the additional units will appear in the data file after the overrides to the existing units.

The following is the general format of the NAMELIST input data file, consisting of several data sets, used to make changes to an existing Generation Model.

$INPUT Each NAMELIST data set must begin with $INPUT and end with a closing $.

ID1 =

See General Data, page 4-5.

ID2 =

MODIFYING AN EXISTING GENERATION MODEL (Continued)

NEW = _____,	See General Data, page 4-5.
NREAD = _____,	Points to the Generation Model record to be modified by the next data set.
MANUAL = _____,	0 = No new records will be added. 1 = Generating unit data for new records will be supplied.
M7 = _____$	See General Data, page 4-5.
$INPUT	Beginning of the next NAMELIST input data set.
Override Data	Data containing changes to be made to generating units on the record pointed to by the value of NREAD from above.
NREAD = _____$	Generation Model record to be modified by the next NAMELIST input data set.
$INPUT	
Override Data	Data containing changes to be made to generating units on the record pointed to by the last value of NREAD that was read in.
NREAD = _____$	Generation Model record to be modified by the next NAMELIST input data set.
$INPUT	
Override Data	Data containing changes to be made to generating units on the record pointed to by the last value of NREAD that was read in.
NREAD = 0$	Indicates the end of overrides to units on the existing Generation Model.
$INPUT	
IMAX = _____,	Number of generating units being described by this data set.
New Unit Data	Generating unit data describing the units to be included on the first new record to be added to the Generation Model.

MODIFYING AN EXISTING GENERATION MODEL (Continued)

KMORE = 0$ — 0 = More sets of generating unit data will be supplied.
1 = Current set is the last set of data.

$INPUT

IMAX = _____,

New Unit Data — Generating unit data describing the units to be included on the <u>next new record</u> to be added to the Generation Model.

KMORE = 1$

JOB SETUP

Listed below is a typical input file for the Generation Model Program. An explanation of the function of specific lines in this file is found on page 2-16 of this manual.

```
100  BCR NEW GENERATION MODEL;SIZE(1,xx)
110  BRU *
120  BEN
130##NORM
140$:PROGRAM:RLHS
150$:LIMITS:02,25K,,10K
160$:PRMFL:H*,E,R,AQ53093/.GNMD6
170$:PRMFL:01,R,S,AQ43xxx/ORIGINAL GENERATION MODEL
180$:PRMFL:02,W,S,AQ43xxx/NEW GENERATION MODEL
190$:DATA:15
200$:REMOTE:06
210$:REMOTE:07
220  Name
230  Address
240  City, State, Zip
250  Additional Mailing
260  Information
270  User ID
300  $INPUT
     .
     Data
     .
1000 Last input must end with $
```

NOTE: If permanent space in Background had been created previously, DELETE
100 BCR NEW GENERATION MODEL;SIZE(1,xx)

If the Generation Model is to be created from scratch, DELETE
170$:PRMFL:01,R,S,AQ43xxx/ORIGINAL GENERATION MODEL

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SAMPLE DATA FILES

The following pages show data files used to create a Generation Model from scratch and to modify an existing Generation Model. The following comments apply to the specific files:

CREATE GENERATION MODEL FROM SCRATCH

1. The new Generation Model is called GMFILE1. This file is created by line 100 and written to by line 170.

2. The general data is on lines 300 through 340.

3. The first record of the Generation Model, described by lines 350 through 470, will contain 15 units.

4. The second record, described by lines 480 through 610, will contain three units.

```
LIST GMFILE1


GMFILE1      15:50EST     04/07/83

100 BCR GMFILE1;SIZE(1,200)
110 BRU *
120 BEN
130 ##NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:02,25K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.GNMD6
170 $:PRMFL:02,W,S,AQ43005/GMFILE1
180 $:DATA:15
190 $:REMOTE:06
200 $:REMOTE:07
210             SIX LINES OF USER NAME, ADDRESS,
220             PHONE NUMBER, MARK III USER ID
230
240             TYPE OF MAIL SERVICE
250
260             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='GMFILE1',
320  ID2='CREATE GENERATION MODEL FROM SCRATCH',
330  NEW=1,
340  M7=7$
350  $INPUT
360  IMAX=15,
370  NAMEDB=
380  'SEASHORE  01SEASHORE  02HARBOR     01LINCOLN   01STATESIDE 01',
390  'HARBOR-GT 01HARBOR-GT 02RIVERSIDE 01RIVERSIDE 02NORTH SIDE01',
400  'BLUE LAKE 01MIDLINE   01MIDLINE   02FRONTIER  01BAY VIEW  01',
410  KINDB=2*1, 3*2, 4*3, 2*4, 2*5, 2*6,
420  KCODB=15*1,
430  INSTDB=70,78,48,50,75,60,65,75,82,56,67,52,73,58,80,
440  CAPDB=2*960,135,250,750,50,2*100,150,300,400,300,400,170,550,
450  HRDB(3)=12000,
460  FORDB=.15,
470  KMORE=0$
480  $INPUT
490  IMAX=3,
500  NAMEDB=
510  'CONV.HYD  01CONV.HYD  02OTTER PSH    ',
520  INSTDB=50,65,78,
530  KINDB=2*7,8,
540  KCODB=3*1,
550  GMINDB=3*30,6*40,3*20,12*10,
560  GMAXDB=3*50,6*60,3*50, 12*100,
570  ENGYDB=3*32,6*38,3*28, 12*60,
580  GENES(1,3)=12*300,
590  PUMPES(1,3)=12*320,
600  PONDES(1,3)=12*2400,
610  KMORE=1$


READY
```

MODIFY AN EXISTING GENERATION MODEL

1. The existing Generation Model is called GMFILE1, read in by line 170.

2. The new Generation Model is called GMFILE2. This file is created by line 100 and written to by line 180.

3. NREAD=1, (line 330) says that the next set of NAMELIST input data (lines 360 through 380) applies to record 1.

4. MANUAL=1, (line 340) informs the program that data will be supplied for new records to be added to the Generation Model.

5. Line 370 overrides the installation year of the ninth unit in record 1.

6. Lines 390 through 410 apply to the second record on the existing Generation Model (because NREAD=2, in line 380).

7. Lines 420 through 480 contain characteristics of the unit to be included on the new record to be appended to the existing Generation Model.

```
LIST GMFILE2


GMFILE2     15:51EST    04/07/83

100 BCR GMFILE2;SIZE(1,200)
110 BRU *
120 BEN
130 ##NORM
140 $:PROGRAM:RLHS
150 $:LIMITS:02,25K,,10K
160 $:PRMFL:H*,E,R,AQ43093/.GNMD6
170 $:PRMFL:01,R,S,AQ43005/GMFILE1
180 $:PRMFL:02,W,S,AQ43005/GMFILE2
190 $:DATA:15
200 $:REMOTE:06
210 $:REMOTE:07
220             SIX LINES OF USER NAME, ADDRESS,
230             PHONE NUMBER, MARK III USER ID
240
250             TYPE OF MAIL SERVICE
260
270             NOTE - DO NOT USE CHARACTER COLON
300  $INPUT
310  ID1='GMFILE2',
320  ID2='MODIFY EXISTING GENERATION MODEL',
330  NREAD=1,
340  MANUAL=1,
350  M7=7$
360  $INPUT
370  INSTDB(9)=84,
380  NREAD=2$
390  $INPUT
400  PUMPES(1,3)=12*325,
410  NREAD=0$
420  $INPUT
430  IMAX=1,
440  NAMEDB=12HCOAL  87    ,
450  KINDB=2,  CAPDB=400,
460  INSTDB=87,
470  HRDB=10000,
480  KMORE=1$


READY
```

SAMPLE OUTPUT

ıate a Generation Model from Scratch

The following pages contain the output from a run of the Generation Model Program (.GNMD6), using the data file on page 4-17, to create a Generation Model from scratch.

The bulk output (Report 06) begins with a heading page containing the information that was on lines 210 through 260 of the data file. This is followed by a listing of the NAMELIST input data that was used. The units stored on the Generation Model and their characteristics, as they were input, are then listed. The units are grouped according to records with a maximum of 25 units to a record.

Page 4-28 is the summary output (Report 07) that can be received via the terminal if M7=7 was in the NAMELIST input file. It lists the NAMELIST data records that were read. If any errors occurred during the run, the error messages would also print on this page.

```
05/31/83 1000KT .GNMDG                                                    ##
GNFTLET                                                                   ##
CREATE GENERATION MODEL FROM SCRATCH                                      ##


                ********************************************
                ********************************************
                **                                        **
                **   COPYRIGHT 1971, GENERAL ELECTRIC COMPANY   **
                **  .GNMDG PROGRAM PUBLISHED ONLY IN A LIMITED,  **
                **  COPYRIGHT SENSE, AND ALL RIGHTS, INCLUDING   **
                **  TRADE SECRET RIGHTS, ARE RESERVED.           **
                **                                        **
                ********************************************
                ********************************************

                MAILING LABEL--SEE SECTION 2 FOR INSTRUCTIONS.

**********************************************************************
**********************************************************************
**                                                                  **
**                                                                  **
**                                                                  **
**                                                                  **
**                                                                  **
**      MAIL OUTPUT TO                                              **
**                                                                  **
**                                                                  **
**          SIX LINES OF USER NAME, ADDRESS,                        **
**          PHONE NUMBER, MARK III USER ID                          **
**                                                                  **
**          TYPE OF MAIL SERVICE                                    **
**                                                                  **
**          NOTE - DO NOT USE CHARACTER COLON                       **
**                                                                  **
**                                                                  **
**                                                                  **
**                                                                  **
**                                                                  **
**********************************************************************
**********************************************************************
```

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL

GMFILE1
CREATE GENERATION MODEL FROM SCRATCH

JOB NUMBER 1000KT
05/31/83 14.159

LISTING OF INPUT DATA

```
                SIX LINES OF USER NAME, ADDRESS,                                    00000210
                PHONE NUMBER, MARK III USER ID                                      00000220
                TYPE OF MAIL SERVICE                                                00000240
                NOTE - DO NOT USE CHARACTER COLON                                   00000260
    $INPUT                                                                          00000300
    ID1='GMFILE1',                                                                  00000310
    ID2='CREATE GENERATION MODEL FROM SCRATCH',                                     00000320
    NEW=1,                                                                          00000330
    M7=7$                                                                           00000340
    $INPUT                                                                          00000350
    IMAX=15,                                                                        00000360
    NAMEDB=                                                                         00000370
    'SEASHORE  01SEASHORE  02HARBOR    01LINCOLN   01STATESIDE 01',                 00000380
    'HARBOR-GT 01HARBOR-GT 02RIVERSIDE 01RIVERSIDE 02NORTH SIDE01',                 00000390
    'BLUE LAKE 01MIDLINE   01MIDLINE   02FRONTIER  01BAY VIEW  01',                 00000400
    KINDB=2*1, 3*2, 4*3, 2*4, 2*5, 2*6,                                             00000410
    KCODB=15*1,                                                                     00000420
    INSTDB=70,78,48,50,75,60,65,75,82,56,67,52,73,58,80,                            00000430
    CAPDB=2*960,135,250,750,50,2*100,150,300,400,300,400,170,550,                   00000440
    HRDB(3)=12000,                                                                  00000450
    FORDB=.15,                                                                      00000460
    KMORE=0$                                                                        00000470
    $INPUT                                                                          00000480
    IMAX=3,                                                                         00000490
    NAMEDB=                                                                         00000500
    'CONV.HYD  01CONV.HYD  02OTTER PSH                                              00000510
    INSTDB=50,65,78,                                                                00000520
    KINDB=2*7,8,                                                                    00000530
    KCODB=3*1,                                                                      00000540
    GMINDB=3*30,6*40,3*20,12*10,                                                    00000550
    GMAXDB=3*50,6*60,3*50, 12*100,                                                  00000560
    ENGYDB=3*32,6*38,3*28, 12*60,                                                   00000570
    GENES(1,3)=12*300,                                                              00000580
    PUMPES(1,3)=12*320,                                                             00000590
    PONDES(1,3)=12*2400,                                                            00000600
    KMORE=1$                                                                        00000610
```

GENERAL DATA

DATA FOR UNITS ON RECORD 1

DATA FOR UNITS ON RECORD 2

CREATE GENERATION MODEL FROM SCRATCH

HONEYWELL PAGE PRINTING SYSTEM- B1185-02

GMFILE1
CREATE GENERATION MODEL FROM SCRATCH

JOB NUMBER 1000KT
05/31/83 14.159

RECORDS WRITTEN TO NEW GENERATION MODEL

ID	STATION NAME	TYPE	CO ID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	O + M (VARIB)	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	IN FL	COST C/ MBTU	$/KW/ YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
1	SEASHORE	01	1	1	0	70	0	0	0	0.	0.	960.0	0.	0.	0	0	0.	0.	0.	0.	0.
											0.	0.	0.	0.150			0.	0.	0.	0.	0.
											0.	0.	0.				0.	0.		0.	0.
																	0.	0.		0.	0.
																	0.	0.			
2	SEASHORE	02	1	1	0	78	0	0	0	0.	0.	960.0	0.	0.	0	0	0.	0.	0.	0.	0.
											0.	0.	0.	0.			0.	0.	0.	0.	0.
											0.	0.	0.				0.	0.		0.	0.
																	0.	0.		0.	0.
																	0.	0.			
3	HARBOR	01	2	1	0	48	0	0	0	0.	12000.	135.0	0.	0.	0	0	0.		0.	0.	0.
											0.	0.	0.	0.					0.	0.	0.
											0.	0.	0.						0.	0.	0.
																				0.	0.
4	LINCOLN	01	2	1	0	50	0	0	0	0.	0.	250.0	0.	0.	0	0	0.		0.	0.	0.
											0.	0.	0.	0.					0.	0.	0.
											0.	0.	0.						0.	0.	0.
																				0.	0.
5	STATESIDE	01	2	1	0	75	0	0	0	0.	0.	750.0	0.	0.	0	0	0.		0.	0.	0.
											0.	0.	0.	0.					0.	0.	0.
											0.	0.	0.						0.	0.	0.
																				0.	0.
6	HARBOR-GT	01	3	1	0	60	0	0	0	0.	0.	50.0	0.	0.	0	0	0.		0.	0.	0.
											0.	0.	0.	0.					0.	0.	0.
											0.	0.	0.						0.	0.	0.
																				0.	0.
7	HARBOR-GT	02	3	1	0	65	0	0	0	0.	0.	100.0	0.	0.	0	0	0.		0.	0.	0.
											0.	0.	0.	0.					0.	0.	0.
											0.	0.	0.						0.	0.	0.
																				0.	0.
8	RIVERSIDE	01	3	1	0	75	0	0	0	0.	0.	100.0	0.	0.	0	0	0.		0.	0.	0.
											0.	0.	0.	0.					0.	0.	0.
											0.	0.	0.						0.	0.	0.
																				0.	0.

INFORMATION WRITTEN ON NEW GENERATION MODEL

HONEYWELL PAGE PRINTING SYSTEM- P118B-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL — PAGE 3

GMFILE1
CREATE GENERATION MODEL FROM SCRATCH — JOB NUMBER 1000KT; 05/31/83 14.159

RECORDS WRITTEN TO NEW GENERATION MODEL

ID	STATION NAME	TYPE	CO ID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	O + M (VARIB)	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	IN FL	COST C/ MBTU	$/KW/ YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
9	RIVERSIDE 02	3	1	0	82	0	0	0	0.	0.	150.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.							0.	0.	0.
																				0.	0.
10	NORTH SIDE01	4	1	0	56	0	0	0	0.	0.	300.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.							0.	0.	0.
																				0.	0.
11	BLUE LAKE 01	4	1	0	67	0	0	0	0.	0.	400.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.							0.	0.	0.
																				0.	0.
12	MIDLINE 01	5	1	0	52	0	0	0	0.	0.	300.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.							0.	0.	0.
																				0.	0.
13	MIDLINE 02	5	1	0	73	0	0	0	0.	0.	400.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.							0.	0.	0.
																				0.	0.
14	FRONTIER 01	6	1	0	58	0	0	0	0.	0.	170.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.							0.	0.	0.
																				0.	0.
15	BAY VIEW 01	6	1	0	80	0	0	0	0.	0.	550.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.							0.	0.	0.
																				0.	0.

********** END OF OUTPUT RECORD 1 **********

1	CONV.HYD 01	7	1		50	0	0	0	0.													
	MONTHLY MIN. =				30.		30.			30.	40.	40.	40.	40.	40.	40.	20.	20.	20.			
	MONTHLY MAX. =				50.		50.			50.	60.	60.	60.	60.	60.	60.	50.	50.	50.			
	MONTHLY ENERGY =				32.		32.			32.	38.	38.	38.	38.	38	38.	28.	28.	28.			

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL — PAGE 4

GMFILE1
CREATE GENERATION MODEL FROM SCRATCH — JOB NUMBER 1000KT
05/31/83 14.159

RECORDS WRITTEN TO NEW GENERATION MODEL

ID STATION NAME	T Y P E	C O I D	P L A N T	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M OUTAGE (FIXED) $/KW/YR	(VARIB) RATE (POR) (FOR)	**** FUEL **** T Y P E	I N F L	COST C/ MBTU	$/KW/ YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
2 CONV.HYD 02	7	1		65	0	0	0	0.											
MONTHLY MIN.	=			10.		10.			10.	10.	10.	10.							
MONTHLY MAX.	=			100.		100.			100.	100.	100.	100.							
MONTHLY ENERGY	=			60.		60.			60.	60.	60.	60.							
3 OTTER PSH	8	1		78	0	0	0	0.											
MONTHLY GEN.	=			300.		300.			300.	300.	300.	300.							
MONTHLY PUMP	=			320.		320.			320.	320.	320.	320.							
MONTHLY ENERGY	=			2400.		2400.			2400.	2400.	2400.	2400.							

********** END OF OUTPUT RECORD 2 **********

HONEYWELL BASE PRINTING SYSTEM- P1188-02

REMOTE TERMINAL OUTPUT

REPORT 07 WILL PRINT IF M7=7 INPUT.

```
GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL

JOB NUMBER  1000KT            05/31/83   14.159

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NAMELIST DATA RECORD  1 HAS BEEN READ
NAMELIST DATA RECORD  2 HAS BEEN READ
NAMELIST DATA RECORD  3 HAS BEEN READ

****** END OF NAMELIST DATA CHECKING ******

ALL AVAILABLE DATA HAVE BEEN PROCESSED
```

PROGRAM WILL CHECK ALL NAMELIST DATA FOR ERRORS PRIOR TO EXECUTION.

END OF NAMELIST DATA WILL BE PRINTED IF NO FATAL DATA ERRORS OCCURRED.

INDICATES PROGRAM EXECUTED NORMALLY.

SAMPLE OUTPUT (Continued)

SAMPLE OUTPUT FROM A RUN TO MODIFY AN EXISTING GENERATION MODEL

The following pages contain the bulk output from a run of the Generation Model Program (.GNMD6) using the data file on page 4-19, to modify an existing Generation Model.

Unlike the case where the Generation Model was created from scratch, this output includes two listings of units: the first is the existing Generation Model as it was read in; the second is the new Generation Model with all of the changes and additions that were specified by the NAMELIST input data.

GMFILE2
MODIFY EXISTING GENERATION MODEL

JOB NUMBER 1025KT
05/31/83 14.263

LISTING OF INPUT DATA

```
                SIX LINES OF USER NAME, ADDRESS,                    00000220
                PHONE NUMBER, MARK III USER ID                      00000230
                TYPE OF MAIL SERVICE                                00000250
                NOTE - DO NOT USE CHARACTER COLON                   00000270
 $INPUT                                                             00000300
 ID1='GMFILE2',                                                     00000310
 ID2='MODIFY EXISTING GENERATION MODEL',                            00000320
 NREAD=1,                                                           00000330
 MANUAL=1,                                                          00000340
 M7=7$                                                              00000350
 $INPUT                                                             00000360
 INSTDB(9)=84,                                                      00000370
 NREAD=2$                                                           00000380
 $INPUT                                                             00000390
 PUMPES(1,3)=12*325,                                                00000400
 NREAD=0$                                                           00000410
 $INPUT                                                             00000420
 IMAX=1,                                                            00000430
 NAMEDB=12HCOAL  87    ,                                            00000440
 KINDB=2,  CAPDB=400,                                               00000450
 INSTDB=87,                                                         00000460
 HRDB=10000,                                                        00000470
 KMORE=1$                                                           00000480
```

GENERAL DATA

CHANGES TO UNITS ON RECORD 1

CHANGES TO UNITS ON RECORD 2

UNITS TO BE ADDED TO GENERATION MODEL

MODIFY EXISTING GENERATION MODEL

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL

GMFILE2
MODIFY EXISTING GENERATION MODEL

JOB NUMBER 1025KT
05/31/83 14.263

RECORDS READ FROM ORIGINAL GENERATION MODEL

ID	STATION NAME	TYPE	CID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	O + M (VARIB)	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	FUEL	COST C/MBTU	$/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM, PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
1	SEASHORE	01	1	1	0	70	0	0	0	0.	0.	960.0	0.	0.	0	0	0.	0.	0.	0.	0.
										0.	0.	0.		0.150			0.	0.	0.		0.
										0.	0.		0.				0.	0.			0.
																	0.	0.			
2	SEASHORE	02	1	1	0	78	0	0	0	0.	0.	960.0	0.	0.	0	0	0.	0.	0.	0.	0.
										0.	0.	0.		0.			0.	0.	0.		0.
										0.	0.		0.				0.	0.			0.
																	0.	0.			
3	HARBOR	01	2	1	0	48	0	0	0	0.	12000.	135.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.		0.
										0.	0.		0.						0.		0.
4	LINCOLN	01	2	1	0	50	0	0	0	0.	0.	250.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.		0.
										0.	0.		0.						0.		0.
5	STATESIDE	01	2	1	0	75	0	0	0	0.	0.	750.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.		0.
										0.	0.		0.						0.		0.
6	HARBOR-GT	01	3	1	0	60	0	0	0	0.	0.	50.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.		0.
										0.	0.		0.						0.		0.
7	HARBOR-GT	02	3	1	0	65	0	0	0	0.	0.	100.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.		0.
										0.	0.		0.						0.		0.
8	RIVERSIDE	01	3	1	0	75	0	0	0	0.	0.	100.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.		0.
										0.	0.		0.						0.		0.

ORIGINAL GENERATION MODEL READ IN

HONEYWELL PAGE PRINTING SYSTEM- B1108-02

RECORDS READ FROM ORIGINAL GENERATION MODEL

ID	STATION NAME	TYPE	COD	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	O + M (VARIB)	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	FIRM	COST C/MBTU	$/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
9	RIVERSIDE 02	3	1	0	82	0	0	0	0.	0.	150.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.	0.	0.
										0.	0.		0.						0.	0.	0.
																				0.	0.
10	NORTH SIDE01	4	1	0	56	0	0	0	0.	0.	300.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.	0.	0.
										0.	0.		0.						0.	0.	0.
																				0.	0.
11	BLUE LAKE 01	4	1	0	67	0	0	0	0.	0.	400.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.	0.	0.
										0.	0.		0.						0.	0.	0.
																				0.	0.
12	MIDLINE 01	5	1	0	52	0	0	0	0.	0.	300.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.	0.	0.
										0.	0.		0.						0.	0.	0.
																				0.	0.
13	MIDLINE 02	5	1	0	73	0	0	0	0.	0.	400.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.	0.	0.
										0.	0.		0.						0.	0.	0.
																				0.	0.
14	FRONTIER 01	6	1	0	58	0	0	0	0.	0.	170.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.	0.	0.
										0.	0.		0.						0.	0.	0.
																				0.	0.
15	BAY VIEW 01	6	1	0	80	0	0	0	0.	0.	550.0	0.	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.		0.					0.	0.	0.
										0.	0.		0.						0.	0.	0.
																				0.	0.

********** END OF INPUT RECORD 1 **********

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL

GMFILE2
MODIFY EXISTING GENERATION MODEL

JOB NUMBER 1025KT
05/31/83 14.263

RECORDS READ FROM ORIGINAL GENERATION MODEL

ID	STATION NAME	TYPE	CODE	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	O + M (VARIB) $/KW/YR	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	FIRED	COST C/MBTU	$/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
1	CONV.HYD 01	7	1		50	0	0	0	0.												
	MONTHLY MIN.	=			30.		30.			30.	40.	40.	40.	40.	40.	40.	40.	40.	40.	20.	20.
	MONTHLY MAX.	=			50.		50.			50.	60.	60.	60.	60.	60.	60.	60.	60.	60.	50.	50.
	MONTHLY ENERGY	=			32.		32.			32.	38.	38.	38.	38.	38.	38.	38.	38.	38.	28.	28.
2	CONV.HYD 02	7	1		65	0	0	0	0.												
	MONTHLY MIN.	=			10.		10.			10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.
	MONTHLY MAX.	=			100.		100.			100	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.
	MONTHLY ENERGY	=			60.		60.			60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.
3	OTTER PSH	8	1		78	0	0	0	0.												
	MONTHLY GEN.	=			300.		300.			300.	300.	300.	300.	300.	300.	300.	300.	300.	300.	300.	300.
	MONTHLY PUMP	=			320.		320.			320.	320.	320.	320.	320.	320.	320.	320.	320.	320.	320.	320.
	MONTHLY ENERGY	=			2400.		2400.			2400.	2400.	2400.	2400.	2400.	2400.	2400.	2400.	2400.	2400.	2400.	2400.

********** END OF INPUT RECORD 2 **********

HONEYWELL PAGE PRINTING SYSTEM- 01185-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20 — PAGE 5
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL

JOB NUMBER 1025KT
05/31/83 14.263

GMFILE2
MODIFY EXISTING GENERATION MODEL

RECORDS ADDED TO ORIGINAL GENERATION MODEL

ID	STATION NAME	TYPE	COID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) (VARIB) $/KW/YR	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	INDEX	COST C/MBTU	$/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
1	COAL 87	2	1	0	87	0	0	0	0.	10000.	400.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.						0.	0.	0.
																			0.	0.

********** END OF INPUT RECORD 3 **********

UNITS TO BE ADDED TO GENERATION MODEL

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL

GMFILE2
MODIFY EXISTING GENERATION MODEL

JOB NUMBER 1025KT
05/31/83 14.263

RECORDS WRITTEN TO NEW GENERATION MODEL

ID	STATION NAME	TYPE	CID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	O + M (VARIB)	OUTAGE RATE (POR)	OUTAGE RATE (FOR)	**** FUEL **** TYPE	**** FUEL **** FIL	**** FUEL **** COST C/MBTU	**** FUEL **** $/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
1	SEASHORE	01	1	1	0	70	0	0	0	0.	0.	960.0	0.	0.	0.150	0	0	0.	0.	0.	0.	0.
										0.	0.	0.						0.	0.	0.	0.	0.
										0.	0.		0.					0.	0.		0.	0.
																		0.	0.			0.
																						0.
2	SEASHORE	02	1	1	0	78	0	0	0	0.	0.	960.0	0.	0.		0	0	0.	0.	0.	0.	0.
										0.	0.	0.						0.	0.	0.	0.	0.
										0.	0.		0.					0.	0.		0.	0.
																		0.	0.			0.
																						0.
3	HARBOR	01	2	1	0	48	0	0	0	0.	12000.	135.0	0.	0.		0	0	0.		0.	0.	0.
										0.	0.	0.								0.	0.	0.
										0.	0.		0.								0.	0.
																						0.
																						0.
4	LINCOLN	01	2	1	0	50	0	0	0	0.	0.	250.0	0.	0.		0	0	0.		0.	0.	0.
										0.	0.	0.								0.	0.	0.
										0.	0.		0.								0.	0.
																						0.
																						0.
5	STATESIDE	01	2	1	0	75	0	0	0	0.	0.	750.0	0.	0.		0	0	0.		0.	0.	0.
										0.	0.	0.								0.	0.	0.
										0.	0.		0.								0.	0.
																						0.
																						0.
6	HARBOR-GT	01	3	1	0	60	0	0	0	0.	0.	50.0	0.	0.		0	0	0.		0.	0.	0.
										0.	0.	0.								0.	0.	0.
										0.	0.		0.								0.	0.
																						0.
																						0.
7	HARBOR-GT	02	3	1	0	65	0	0	0	0.	0.	100.0	0.	0.		0	0	0.		0.	0.	0.
										0.	0.	0.								0.	0.	0.
										0.	0.		0.								0.	0.
																						0.
																						0.
8	RIVERSIDE	01	3	1	0	75	0	0	0	0.	0.	100.0	0.	0.		0	0	0.		0.	0.	0.
										0.	0.	0.								0.	0.	0.
										0.	0.		0.								0.	0.
																						0.
																						0.

NEW GENERATION MODEL WRITTEN OUT

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL

GMFILE2
MODIFY EXISTING GENERATION MODEL

JOB NUMBER 1025KT
05/31/83 14.263

RECORDS WRITTEN TO NEW GENERATION MODEL

ID	STATION NAME	TYPE	COID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	O + M (VARIB)	OUTAGE RATE (POR)	OUTAGE RATE (FOR)	**** FUEL **** TYPE	INDX	COST C/MBTU	$/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
9	RIVERSIDE 02	3	1	0	84	0	0	0	0.	0.	150.0	0.	0.	0	0	0	0	0.		0.	0.	0.
										0.	0.	0.	0.							0.	0.	0.
										0.	0.		0.							0.	0.	0.
																					0.	0.
10	NORTH SIDE01	4	1	0	56	0	0	0	0.	0.	300.0	0.	0.	0	0	0	0	0.		0.	0.	0.
										0.	0.	0.	0.							0.	0.	0.
										0.	0.		0.							0.	0.	0.
																					0.	0.
11	BLUE LAKE 01	4	1	0	67	0	0	0	0.	0.	400.0	0.	0.	0	0	0	0	0.		0.	0.	0.
										0.	0.	0.	0.							0.	0.	0.
										0.	0.		0.							0.	0.	0.
																					0.	0.
12	MIDLINE 01	5	1	0	52	0	0	0	0.	0.	300.0	0.	0.	0	0	0	0	0.		0.	0.	0.
										0.	0.	0.	0.							0.	0.	0.
										0.	0.		0.							0.	0.	0.
																					0.	0.
13	MIDLINE 02	5	1	0	73	0	0	0	0.	0.	400.0	0.	0.	0	0	0	0	0.		0.	0.	0.
										0.	0.	0.	0.							0.	0.	0.
										0.	0.		0.							0.	0.	0.
																					0.	0.
14	FRONTIER 01	6	1	0	58	0	0	0	0.	0.	170.0	0.	0.	0	0	0	0	0.		0.	0.	0.
										0.	0.	0.	0.							0.	0.	0.
										0.	0.		0.							0.	0.	0.
																					0.	0.
15	BAY VIEW 01	6	1	0	80	0	0	0	0.	0.	550.0	0.	0.	0	0	0	0	0.		0.	0.	0.
										0.	0.	0.	0.							0.	0.	0.
										0.	0.		0.							0.	0.	0.
																					0.	0.

********** END OF OUTPUT RECORD 1 **********

1	CONV.HYD 01	7	1		50	0	0	0	0.														
	MONTHLY MIN. =				30.	30.	30.	40.	40.	40.	40.	40.	40.	40.	20.	20.	20.						
	MONTHLY MAX. =				50.	50.	50.	60.	60.	60.	60.	60.	60.	60.	50.	50.	50.						
	MONTHLY ENERGY =				32.	32.	32.	38.	38.	38.	38.	38.	38.	38.	28.	28.	28.						

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

RECORDS WRITTEN TO NEW GENERATION MODEL

ID	STATION NAME	TYPE	CODE	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	OUTAGE RATE (POR) (FOR)	FUEL TYPE	FUEL INDEX	FUEL COST C/MBTU	$/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	COEFFICIENTS CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
2	CONV.HYD 02	7	1		65	0	0	0	0.											
	MONTHLY MIN.	=			10.		10.			10.	10.	10.	10.			10.	10.	10.	10.	10.
	MONTHLY MAX.	=			100.		100.			100.	100.	100.	100.			100.	100.	100.	100.	100.
	MONTHLY ENERGY	=			60.		60.			60.	60.	60.	60.			60.	60.	60.	60.	60.
3	GTTER PSH	8	1		78	0	0	0	0.											
	MONTHLY GEN.	=			300.		300.			300.	300.	300.	300.			300.	300.	300.	300.	300
	MONTHLY PUMP	=			325.		325.			325.	325.	325.	325.			325.	325.	325.	325.	325.
	MONTHLY ENERGY	=			2400.		2400.			2400.	2400.	2400.	2400.			2400.	2400.	2400.	2400.	2400.
********** END OF OUTPUT RECORD 2 **********																				
1	COAL 87	2	1	0	87	0	0	0	0.	10000.	400.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.						0.	0.	0.
																			0.	0.
********** END OF OUTPUT RECORD 3 **********																				

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION MODEL PROGRAM .GNMD6 V6.20
PROGRAM TO CREATE OR MODIFY AN OGP GENERATION MODEL — PAGE 8

GMFILE2
MODIFY EXISTING GENERATION MODEL — JOB NUMBER 1025KT — 05/31/83 14.263

RECORDS WRITTEN TO NEW GENERATION MODEL

ID	STATION NAME	TYPE	CO ID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (FMAX) (FMIN)	RATING MW/P.U. (CAP) (PMAX) (PMIN)	O + M (FIXED) $/KW/YR	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	INDEX	COST C/MBTU	$/KW/YEAR	LIMITS (ENGY) (FUEL)	HEAT REJ SO2 REM. PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
2	CONV.HYD 02	7	1		65	0	0	0	0.											
	MONTHLY MIN.		=		10.		10.			10.	10.	10.	10.					10.	10.	10.
	MONTHLY MAX.		=		100.		100.			100.	100.	100.	100.					100.	100.	100.
	MONTHLY ENERGY		=		60.		60.			60.	60.	60.	60.					60.	60.	60.
3	OTTER PSH	8	1		78	0	0	0	0.											
	MONTHLY GEN.		=		300.		300.			300.	300.	300.	300.					300.	300.	300.
	MONTHLY PUMP		=		325.		325.			325.	325.	325.	325.					325.	325.	325.
	MONTHLY ENERGY		=		2400.		2400.			2400.	2400.	2400.	2400.					2400.	2400.	2400.

********** END OF OUTPUT RECORD 2 **********

1	COAL 87	2	1	0	87	0	0	0	0.	10000.	400.0	0.	0.	0	0	0.		0.	0.	0.
										0.	0.	0.	0.					0.	0.	0.
										0.	0.	0.						0.	0.	0.
																			0.	0.

********** END OF OUTPUT RECORD 3 **********

HONEYWELL PAGE PRINTING SYSTEM- P1168-02

OGP INPUT DATA

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OGP INPUT DATA

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INTRODUCTION

The Optimized Generation Planning (OGP) Program consists of two linked segments--the Data Preparation (DP) Program and the Generation Planning (GP) Program. Because of increased core storage requirements, certain capabilities are available only in a separate version of OGP designated as OGP-6A. Descriptions of the specific input items required for OGP-6A begin on pages 5-45 and 5-70.

The general data input to the Data Preparation Program is used in setting up the standard tables which describe the six thermal types of units, conventional hydro units, and the three types of energy storage. Also, included are tables for plant, operation and maintenance (O&M) and fuel costs, inflation patterns, planned and forced outage rates, heat rates, minimum loading points, and environmental data. These standard table characteristics are then assigned to the individual units by type.

If a unit has unique characteristics with respect to other units of its type, it is possible to override the values calculated from the standard tables. This is done through use of the NREAD statement and the override variables described on page 5-55. The units being modified are referenced by their position within the Generation Model records. NREAD identifies the next record to be modified. Since the records are modified as they are read, it is necessary to modify them sequentially.

It is also possible to override data annually at the Generation Planning level through use of the IYREAD statement. IYREAD is set equal to the next year for which override data is to be read, and specific units are identified by their position in the master list of thermal units, which is printed at the end of the Data Preparation output and again at the beginning of the Generation Planning output. An overridden variable retains its new value until it is overridden again. The list on page 5-62 indicates which Generation Planning input variables may be overridden, and page 5-92 describes the variables used to override values that had been assigned by the Data Preparation Program.

CHANGING INPUT DATA IN OGP-6

Most of the data input to OGP can be overridden by the user at several points in the OGP process. This flexibility provides the user with the means to model the system in more detail and also simplifies the running of parametric sensitivities. To ensure that the data is being modified correctly, caution must be exercised.

The characteristics of the individual units initially can be input in either of two ways:

1. On an individual unit basis in the Generation Model.

2. Through the standard tables input by unit type in the Data Preparation Program; characteristics not input in the Generation Model are assigned a value from the Data Preparation standard tables.

CHANGING INPUT DATA IN OGP-6 (Continued)

This data on the individual unit characteristics can then be overridden either through use of the Generation Model overrides of the Data Preparation Program or through input to the Generation Planning Program in OGP.

As many of the desired overrides as possible should be made in the Data Preparation Program. The two major reasons why this guideline should be followed are explained below.

1. When overrides are supplied at the Data Preparation level, the units are referenced by their position within a specific record in the Generation Model. This position will not change unless a new Generation Model is used. In the Generation Planning Program, units are indexed by their location in a master list of thermal units. This list can be affected by changes in installation and retirement dates, unit lumping, and the starting year of the study. Therefore, when changes are made at the Generation Planning level, it is possible for a unit's position to shift from one run to the next, causing the overrides to modify the wrong units.

2. Unit overrides in the Data Preparation Program have an additional advantage because they change everything associated with an overridden variable, while at the Generation Planning level, only the particular variable is changed. For example, overriding a unit's fuel type at the Data Preparation level automatically changes its fuel cost, fuel inflation pattern, and environmental data assigned by fuel type. A similar override made at the Generation Planning level changes only the fuel type that is printed. Therefore, the user must also override the necessary associated variables.

Fuel costs input to Data Preparation are in ¢/MBtu, whereas fuel costs input to Generation Planning are in $/MBtu. Fixed charge rates input to Data Preparation are in percent; in Generation Planning, they are input in per unit (p.u.).

Manual maintenance patterns must be input at the Data Preparation level. They may be overridden as input to Generation Planning, general data or annual data. Manual maintenance patterns are printed at the end of the annual production cost output. However, the program remembers the maximum number of patterns defined by input to the Data Preparation Program and will print only that number of patterns.

Table 5-1 is designed to serve as a guide in changing an OGP data file. It lists the variables used to change given input items and the associated variables that should also be checked.

NOTE: If cost data is being overridden in the Data Preparation Program or in the general data to the Generation Planning Program, it is input relative to the year in which costs are quoted (NYCOST). If the costs are input in annual overrides to Generation Planning, they must be deflated by one year, because OGP will inflate these costs after reading them.

CHANGING INPUT DATA IN OGP-6 (Continued)

TABLE 5-1

ITEM	PROGRAM	INPUT VARIABLES		PAGE	ASSOCIATED INPUT	PAGE
Fuel Costs	DP	Std. Table:	FUCOST	5-28	IPATFC	5-29
			FUICST	5-29	FUBCPU	5-30
			FCOPT	5-28	FUICPU	5-30
					PATFC	5-32
		Unit:	CMBTU	5-57	IYRFC	5-32
			FUICDB	5-57		
			FUBCDB	5-57		
	GP		TEMPC	5-91	IFCPAT	5-91
			FUCOST	5-91	UPFUEL	5-85
			FUIC	5-91		
O&M Costs	DP	Std. Table:	OMDKW	5-33	OMMW	5-33
			OMDHR	5-33	OMDF	5-33
			OMHYD	5-35	NDVOM (GP)	5-84
			OMVHYD	5-35	PATOM	5-33
					IYROM	5-33
		Unit:	OMDB	5-57	PATHOM	5-35
			OMVDB	5-57	IYRHOM	5-35
	GP		OM	5-91		
			OMV	5-91		
			OMHYD	5-89		
			OMVHYD	5-89		
Plant Costs	DP	Std. Table:	PLCDKW	5-20	PLCMW	5-20
			PLCHYD	5-22	PLCDF	5-20
			PLCMOD	5-23	PATPC	5-20
					IYRPC	5-20
		Unit:	DKWDB	5-57	PATHPC	5-22
					IYRHPC	5-22
					FIXCHG	5-25
					HYDFCR	5-27
	GP		CAPCOS	5-91		
Unit Rating	DP		CAPDB	5-56	HRDB	5-56
			PMINDB	5-56	FMINDB	5-56
			PMAXDB	5-56	FMAXDB	5-56
			GMINDB	5-57	ENGYDB	5-57
			GMAXDB	5-57		

CHANGING INPUT DATA IN OGP-6 (Continued)

TABLE 5-1 (Continued)

ITEM	PROGRAM	INPUT VARIABLES		PAGE	ASSOCIATED INPUT	PAGE
			GENES	5-57	PONDES	5-57
					PUMPES	5-57
	GP		CAP	5-90	FIN1	5-90
			POW1	5-90	FIN2	5-90
			POW2	5-90		
Fuel Input	DP	Std. Table:	XHRDB	5-42	XPOW1	5-42
			HRES	5-16	XFIN1	5-42
		Unit:	HRDB	5-56	FMINDB	5-56
			FMAXDB	5-56		
	GP		FIN2	5-90	FIN1	5-90
Fuel Type	DP	Std. Table:	IFTAB	5-29		
			ITFOSS	5-29		
			KFTES	5-29		
		Unit:	KFTDB	5-57		
	GP		IFTYPE	5-90	BTUNIT	5-90
					FUCOST	5-91
					FUIC	5-91
					TEMPC	5-91
					IFCPAT	5-91
					UPFUEL	5-85
Unit Type	DP		KINDB	5-56		
	GP		KIND	5-90	All other inputs associated with the unit should be checked.	
Outage Rates	DP	Std. Table:	FORMW	5-38	NIMMOR (GP)	5-65
			FORATE	5-38	SHKFOR (GP)	5-65
			PORMW	5-39	SHKPOR (GP)	5-65
			PORATE	5-39	IMSTYP (GP)	5-65
			DERHYD	5-16	FORSHK (GP)	5-65
					PORSHK (GP)	5-65

TABLE 5-1 (Continued)

ITEM	PROGRAM	INPUT VARIABLES		PAGE	ASSOCIATED INPUT	PAGE
		Unit:	FORDB	5-57		
			PORDB	5-57		
	GP		FOR	5-90	Overrides at GP will be modified by any applicable immaturity multipliers.	
			POR	5-90		
Manual Maintenance	DP		IPATRN	5-40		
			MPATDB	5-57		
	GP		IPATRN	5-89		
			MMPAT	5-90		
Cycling Rules	DP	Unit:	MRDB	5-57		
	GP	Std. Table:	KCYCLE	5-68	KZONE	5-68
					KBREAK	5-68
					KEYCMT	5-69
					LCOMIT	5-68
		Unit:	MSTRUN	5-90		
Unit Service Period	DP	Std. Table:	NYRET	5-37		
		Unit:	INSTDB	5-56		
			MINTDB	5-56		
			INORDB	5-56		
			KRETDB	5-56		
			MRETDB	5-56		
	GP		IYRAUT	5-83	NSICMT	5-85
					MONAUT	5-79
					IVCSUB	5-83
					MONRET	5-83

TABLE 5-1 (Continued)

ITEM	PROGRAM	INPUT VARIABLES	PAGE	ASSOCIATED INPUT	PAGE
Optimization Types	GP	KOPT	5-79	MANFYR (DP)	5-17
		NOKOPT	5-79	XSIZES (DP)	5-17
		KOPOVR	5-82	NNMANY (DP)	5-15
				NNAHED (DP)	5-15
				ESIZEG	5-89
				ESIZEP	5-89
				ESIZES	5-89
				FAIL	5-79
				GRMLTI	5-80
				GRMLTP	5-80
Economic Overbuilding	GP	NYPOVR	5-82	KOPT	5-79
		KOPOVR	5-82		
		PROVER	5-82		
		LMBSES	5-82		
Environmental DP Calculations	DP Std. Table:	HREJ	5-45	KPLDB	5-56
		SORM	5-45	IREGN	5-43
		PREFF	5-45	KPLANT	5-44
		SOTAB	5-45	KEYENV	5-45
		PCSULF	5-45	HVTAB	5-28
		CFCTAB	5-45		
		CFNTAB	5-45		
		CFPTAB	5-45		
		CFWTAB	5-45		
	Unit:	HREJDB	5-60		
		SORMDB	5-60		
		PREFDB	5-60		
		CFCODB	5-60		
		CFNODB	5-60		
		CFPTDB	5-60		
		CFWCDB	5-60		
	GP	COEFCO	5-92	KEYENV	5-84
		COEFNO	5-92	KEYCMT	5-69
		COEFPT	5-92	ECOMIT	5-69, 5-70
		COEFWC	5-92	EDISP	5-69, 5-72
		PRECEF	5-92	BTUNIT	5-90
		PUHREJ	5-92		
		PUSORM	5-92		
		SOCONT	5-92		

CHANGING INPUT DATA IN OGP-6 (Continued)

TABLE 5-1 (Continued)

ITEM	PROGRAM	INPUT VARIABLES		PAGE	ASSOCIATED INPUT	PAGE
Fuel/Energy Limits	DP	Std. Table:	ELIMIT	5-48	LIMIT	5-48
			FLIMIT	5-48	LIMCF	5-48
			PUELIM	5-48		
			PUFLIM	5-48		
		Unit:	ELIMDB	5-60	PUELIM	5-48
					PUFLIM	5-48
	GP		ELIMIT	5-92	LIMIT	5-92
			FLIMIT	5-92	LIMCF	5-92
			PUELIM	5-92		
			PUFLIM	5-92		

NOTE: If cost data is being overridden in the Data Preparation Program or in the general data to the Generation Planning Program, it is input relative to the year in which costs are quoted (NYCOST). If the costs are input in annual overrides to Generation Planning, they must be deflated by one year, because OGP will inflate these costs after reading them.

NAMELIST INPUT

When a READ statement refers to a NAMELIST name, the designated input device is readied by the system and input of data can begin.

The program searches the first input data record for a $, immediately followed by the NAMELIST name and a comma, equal sign, or one or more blank characters. If the search fails, additional records are examined consecutively until a successful match or end-of-file is encountered.

When the NAMELIST name on a data record and the NAMELIST name referred to in a READ statement are successfully matched, data items are read and placed into storage until the end of a data set is encountered. The end of a data set is indicated by a $.

Data may be keyed in columns 1 through 72. The computer system will ignore data in columns 73-80.

Data items must be separated by commas, i.e., each piece of data (including the last piece) must be followed by a comma.

To indicate the end of a data set, use $, instead of a comma, following the last data item in the set.

CAUTION: Do not indicate the end of a data set by entering a single $ in column 1 or 2. The software will interpret a single $ in column 1 or 2 as a control card. This may cause the program to loop until the processor limits are exhausted.

Summarizing, a set of NAMELIST data must begin with $ and the NAMELIST name and must end with a $.

The NAMELIST name used in OGP programs is INPUT.

The following is a set of data:

```
$INPUT
ID1=9HTEST CASE,
NTOTAL=1,
CAPDB=100,500,
M3D=7$
```

CAUTION: The following combinations will cause an invalid word to be stored:

=,	e.g.,	NTOTAL=,1,
blank,	e.g.,	NTOTAL=1 ,
,,	e.g.,	CAPDB=100,,500

NAMELIST INPUT (Continued)

However, leading blanks are valid:

```
NTOTAL= 1,
CAPDB= 100, 500,
```

Data items may take one of the following formats:

1. Constants

Integer

```
NTOTAL=10,
NTOTAL,10,
NTOTAL = 10,
```

(The maximum number of digits allowed is ten.)

Real

```
FAIL=1, or FAIL=1.0,
BIG=100000, or BIG=100000.0,
or BIG=1+5, or BIG=1.0E5,
SMALL=.007, or SMALL=7.0E-3,
```

(The maximum number of digits allowed is eight before and eight after the decimal point.)

2. Arrays or lists

Each data item must be followed by a comma.

```
CAPDB=1000,1250,1300,
```

An asterisk may be used to indicate repeated data.

```
CAPDB=3*1000,
```

If data does not fit on a line, continue the data on the next line. Do not straddle data between two lines.

The software may or may not detect an error if the number of data entries exceeds a variable's dimension.

```
PCTCAP is dimensioned PCTCAP(6)
PCTCAP=.25,.25,0,.25,.25,.20,.20,     (Error not detected)
PCTCAP=2*.25,0,2*.25,2*.20,           (Error detected)
```

3. Matrices

```
MATRIX is dimensioned MATRIX(5,2)

MATRIX=500,750,3*0,200,400,
or
MATRIX=500,750,MATRIX(6)=200,400
or
MATRIX(1,1)=500,750,MATRIX(1,2)=200,400,
```

4. Hollerith or Alphabetic

Hollerith data is indicated by XXH followed by data and a comma.
XX is the count of Hollerith characters supplied in each line.
Each word in core storage is six characters long.
Quotation marks may be used before and after data to replace XXH.

ID1 is dimensioned ID1(10)
A maximum of 60 characters may be used to define data associated with ID1. (10 words, 6 characters each)

```
ID1=60HREFERENCE CASE (54 spaces)
or
ID1=14HREFERENCE CASE,
or
ID1='REFERENCE CASE',
```

NAMEDB is dimensioned NAMEDB(2,25)
Two consecutive words, i.e., 12 characters are assigned to each of 25 units.

To define the names of two units beginning with unit six:

```
NAMEDB(1,6)=24HNORTH SIDE  SOUTH SIDE  ,
```

The EDIt SEQuence command will prefix a line number and one blank space before each line of data.

Subsequently, when a Foreground file is sent to Background for execution, the Interface will strip the line number and one blank space, if one exists.

Foreground File	After stripping line number and one blank space, if one exists
200 $:DATA:15	$ appears in column 1
210 $INPUT	$INPUT starts in column 2
220 NTOTAL=1,	NTOTAL starts in column 2
200$:DATA:15	$ appears in column 1
210 $INPUT	$INPUT starts in column 1
220 NTOTAL=1,	NTOTAL starts in column 1

Both examples listed above are valid because, after stripping, the following will occur:

1. The $ associated with the control card appears in column 1, as required.

2. The current software allows NAMELIST data to be entered in columns 1-72.

DATA PREPARATION PROGRAM

For the Data Preparation Program, the following order of input data must be observed:

1. General data.

2. Override Generation Model data (optional). At this time, any characteristics not described in the Generation Model can also be input.

   If this data is supplied, NREAD=X must be input in the general data, where X = the first Generation Model record to be modified.

3. Manual additions (optional).

   If this data is supplied, MANUAL=1 must be included in the general data.

Unless otherwise stated, all values have been initialized to 0.

OCP Output

DATA PREPARATION PROGRAM

ALPHABETIC LISTING OF INPUT VARIABLES

Variable	Page
CAPDB	5-56
CAPMIN	5-15
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CFPTAB	5-45
CFPTDB	5-60
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CFWTAB	5-45
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FCDB	5-57
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FLIMIT	5-48
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FPCTDB	5-57
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IDTONE	5-14
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IPATFC	5-29
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KMORE	5-55
KPLANT	5-44
KPLDB	5-56
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NYPWTH	5-13
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OMDB	5-57
OMDF	5-33
OMDHR	5-33
OMDKW	5-33
OMHYD	5-35
OMMW	5-33
OMVDB	5-57
OMVHYD	5-35
OPCTDB	5-56
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PLCHYD	5-22
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PLCMW	5-20
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PMINDB	5-56
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POOLMW	5-53
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SOTAB	5-45
STEP	5-52
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XPOW1	5-42
XSIZES	5-17

GENERAL DATA

Optional--6 lines available for User Name, Address, User Id and Mailing Instructions (Maximum of 60 characters per line).

_____
_____
_____
_____
_____
_____

$INPUT

ID1 = 60H _____,
ID2 = 60H _____,

or

ID1 = '_____',
ID2 = '_____',

Hollerith identification of case, line 1 and line 2.
ID1 $\leq$ 60 characters.
ID2 $\leq$ 60 characters.

NSTART = _____, First year to study.
Four digits, e.g., 1985.

NTOTAL = _____, Number of years in expansion study.
NTOTAL $\leq$ 30.

NYCOST = _____, Year in which costs are quoted.
Four digits, e.g., 1982.
All costs input must be relative to NYCOST.

NYPWTH = _____, Year of reference for present worth.
Four digits, e.g., 1982.

NREAD = _____, Option to override data read from Generation Model, or read in additional Generation Model data.
0 = Omit.
X = Points to first generation model record to be modified.

MANUAL = _____, Option to add units manually.
0 = Omit.
1 = Manual addition data will be supplied.

NOTE: Unless otherwise stated, all values have been initialized to 0.
Where inflation rates are used:
Cost in Year (N) = [Cost in Year (N-1)]
*[Inflation Multiplier in Year (N)]

GENERATION TYPE DATA

IDTYPE(2,10) — Hollerith identification of thermal, conventional hydro, and energy storage types. 12 characters for each type.

IDTONE(10) — Hollerith identification of thermal, conventional hydro, and energy storage types. 6 characters for each type.

KTTYPE(6) — Code to tag thermal types. Used by program to determine unit sizes for automatic addition.
- -1 = Nuclear (May tag maximum of 2 thermal types as nuclear. First nuclear is Type 1, second may be Type 5 or 6).
- 0 = Base load fossil.
- 1 = Intermediate (Mid-Range, Peaking Steam, Combined Cycle).
- 2 = Peaking (Gas Turbine).

		Default			Default
IDTYPE =	48H _____	NUCLEAR	IDTONE =	48H _____	NUCL.
	_____	FOSSIL		_____	FOSSIL
	_____	GAS TURBINE		_____	G.T.
	_____,	MID-RANGE		_____	MRANGE
	48H _____			_____	
	_____			_____	
	_____	CONV. HYDRO		_____	HYDRO
	_____,	PUMPED HYDRO		_____,	PSH
	12H _____	ENERGY STO-2		12H _____	ES-2
	_____,	ENERGY STO-3		_____,	ES-3

	Default
KTTYPE = _____,	-1
_____,	0
_____,	2
_____,	1
_____,	-1
_____,	1

THERMAL UNIT SIZE DATA

CAPMIN = _____, Smallest unit size, in MW, of Unit Type 2 to consider. Units smaller than this size will be lumped into equivalent units:
Type 2 units added manually will not be lumped.
If omitted, program will compute:
CAPMIN=Pool Peak*0.0036.
To inhibit lumping of units, input
CAPMIN=0.1,

EQVMAX = _____, Unit size, in MW, of lumped fossil units.
If omitted, program will compute:
EQVMAX=Pool Peak*0.012.

GTIMES = _____, Multiplier used to determine size of lumped gas turbines (Unit Type 3) to retrieve from Generation Model. Lumping is done by company.
Type 3 units added manually will not be lumped.
Gas turbine lump size=GTIMES*STEP,
Initialized to 4.0.
To inhibit lumping of gas turbines, input GTIMES=0,

NNMANY = _____, Unit size guide (nuclear and base fossil only).
Add NNMANY units in NNAHED years.

NNAHED = _____, Unit size guide (nuclear and base fossil only).
Add NNMANY units in NNAHED years.

ENERGY STORAGE DATA

CEFFY = _____,

Overall efficiency of energy storage plants (p.u.) (if same for all 3 types).
Initialized to 0.7.

CEFFES(12,3)
- 12 = Month
- 3 = Storage Type

Cycle efficiency of energy storage, by month (p.u.).
If zero, default is CEFFY.

DERHYD(4)

Deration multiplier and reliability calculations, for
(1) - Conventional Hydro.
Initialized to 0.99.
(2-4) - Energy Storage.
Initialized to DERHYD(1).
Applies to pump, generator, and pond.

HRES(3)

Full load heat rate, Btu/kWh.
Energy storage types.
Use only for energy storage types such as compressed air storage.

CEFFES(1,1) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

CEFFES(1,2) = _____,
_____,
_____,
_____,
_____,
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CEFFES(1,3) = _____,
_____,
_____,
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_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

DERHYD = _____,
_____,
_____,
_____,

HRES = _____,
_____,
_____,

AVAILABLE AUTOMATIC THERMAL UNITS

XSIZES(10,6)
- Type
- Size Index

Lists of unit sizes, by type, to be considered for automatic addition in order to meet system reliability index or percent reserve goal. Within each type, unit sizes should be entered in ascending order.

MANFYR(10,6)
- Type
- Year Index

Lists of earliest service years associated with XSIZES matrix. Within each type, the years must be in ascending order.

NUMSIZ(6)

Option to allow more than 10 sizes per type.
Sum of entries must equal 60.
Initialized to NUMSIZ = 6*10,
e.g., NUMSIZ = 12,8,4*10,
XSIZES (1,1) = Type 1
XSIZES (3,2) = Type 2
XSIZES (1,3) = Type 3
XSIZES (1,4) = Type 4
XSIZES (1,5) = Type 5
XSIZES (1,6) = Type 6

XSIZES(1,1) = _____,	MANFYR(1,1) = _____,
XSIZES(1,2) = _____,	MANFYR(1,2) = _____,
XSIZES(1,3) = _____,	MANFYR(1,3) = _____,

AVAILABLE AUTOMATIC THERMAL UNITS (Continued)

XSIZES(1,4) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

MANFYR(1,4) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
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_____,

XSIZES(1,5) = _____,
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_____,
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_____,

MANFYR(1,5) = _____,
_____,
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_____,
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_____,

XSIZES(1,6) = _____,
_____,
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_____,
_____,
_____,

MANFYR(1,6) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

NUMSIZ = _____,
_____,
_____,
_____,
_____,
_____,

AVAILABLE AUTOMATIC ENERGY STORAGE UNITS

ESIZEG(3)	Size of MW block to add automatically. Generator rating, MW, of each of 3 different energy storage types. Relative to ESIZEP, ESIZES. May change through time at Generation Planning level.
ESIZEP(3)	Size of MW block of charging rating to add automatically. Relative to ESIZEG, ESIZES. May change through time at Generation Planning level.
ESIZES(3)	Size of MWh block of storage capacity to add automatically. Relative to ESIZEG, ESIZEP. May change through time at Generation Planning level.

ESIZEG = _____, _____, _____, ESIZEP = _____, _____, _____, ESIZES = _____, _____, _____,

PLANT COSTS

PLCMW(6)

MW rating, set point, by thermal type.

PLCDKW(6)

Plant cost, $/kW, set point, by thermal type. (Relative to year in which costs are quoted.)

PLCDF(6)

D-factor, p.u., by thermal type.

PATPC(10,6)
- 6 — Type
- 10 — Inflation Multiplier

Plant cost inflation multipliers, by thermal type.
Patterns may consist of up to 10 different multipliers each.
5% input as 1.05.
Initialized by program to 1.0.

IYRPC(10,6)
- 6 — Type
- 10 — Calendar Year

Year inflation multiplier becomes effective (4 digits, e.g., 1982).
If omitted, program will insert first year of study (for first entry only).

See Note on page 5-13.

PLCMW = _____,
_____,
_____,
_____,
_____,
_____,

PLCDKW = _____,
_____,
_____,
_____,
_____,
_____,

PLCDF = _____,
_____,
_____,
_____,
_____,
_____,

PLANT COSTS (Continued)

PATPC(1,1) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

PATPC(1,2) = _____,
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PATPC(1,3) = _____,
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PATPC(1,4) = _____,
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PATPC(1,5) = _____,
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PATPC(1,6) = _____,
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IYRPC(1,1) = _____,
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IYRPC(1,2) = _____,
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IYRPC(1,3) = _____,
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IYRPC(1,4) = _____,
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IYRPC(1,5) = _____,
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IYRPC(1,6) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

PLANT COSTS (Continued)

PLCHYD(4)

Plant cost for conventional hydro and energy storage, $/kW.
(Relative to year in which costs are quoted.)
(1) - Conventional Hydro.
(2)-(4) - Energy Storage.

PATHPC(10,4)
- 10 — Inflation Multiplier
- 4 — Type

Plant cost inflation multiplier.
5% input as 1.05.
Matrix initialized to 1.0.

IYRHPC(10,4)
- 10 — Calendar Year
- 4 — Type

Year inflation multiplier becomes effective (4 digits, e.g., 1982).
If omitted, program will insert first year of study (for first entry only).

See Note on page 5-13.

PLCHYD = _____, _____, _____, _____,

PATHPC(1,1) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

PATHPC(1,2) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

PATHPC(1,3) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

PATHPC(1,4) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

IYRHPC(1,1) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

IYRHPC(1,2) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

IYRHPC(1,3) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

IYRHPC(1,4) = _____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

0025

PLANT COSTS (Continued)

PLCMOD(25,6)
- 6 — Thermal Type
- 25 — Company

Plant cost modifier.
Multiplier is applied to all committed units and units added automatically.
Matrix initialized to 1.0.

Type 1	Type 2	Type 3
PLCMOD(1,1) = _____,	PLCMOD(1,2) = _____,	PLCMOD(1,3) = _____,
_____,	_____,	_____,
_____,	_____,	_____,
_____,	_____,

PLANT COSTS (Continued)

Type 4	Type 5	Type 6
PLCMOD(1,4) = _____,	PLCMOD(1,5) = _____,	PLCMOD(1,6) = _____,
_____,	_____,	_____,
_____,	_____,	_____,
_____,	_____,

FIXED CHARGE RATES

FIXCHG(25,6)
- 6 — Thermal Type
- 25 — Company

Levelized annual fixed charge rate for thermal units, by company. (12-1/2% input as 12.5.) Initialized to 13.

Type 1	Type 2	Type 3
FIXCHG(1,1) = _____,	FIXCHG(1,2) = _____,	FIXCHG(1,3) = _____,
_____,	_____,	_____,
_____,	_____,	_____,
_____,	_____,

FIXED CHARGE RATES (Continued)

Type 4	Type 5	Type 6
FIXCHG(1,4) = _____,	FIXCHG(1,5) = _____,	FIXCHG(1,6) = _____,
_____,	_____,	_____,
_____,	_____,	_____,
_____,	_____,

FIXED CHARGE RATES (Continued)

HYDFCR(25,4)
- 4 — Type
- 25 — Company

Levelized annual fixed charge rate for hydro and energy storage types, by company.
(12-1/2% input as 12.5.)
Initialized to 13.

Conventional Hydro

HYDFCR(1,1) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

Energy Storage 1

HYDFCR(1,2) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

Energy Storage 2

HYDFCR(1,3) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

Energy Storage 3

HYDFCR(1,4) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

FUEL TYPE DATA AND COSTS

NMFUEL(2,20)

Hollerith identification of fuel.
12 characters for each fuel type:
First 6 characters, fuel name.
Last 6 characters, unit of fuel (used in printing fuel consumption report).

HVTAB(20)

Heating value, Btu/unit of fuel (used for fuel consumption calculations).
(See KEYENV, page 5-45.)

FCOPT = _____,

Option to replace fuel costs read from Generation Model by fuel costs defined in OGP data. Applies only to units on Generation Model, not to units manually input in Data Preparation.

0 = Program will use fuel costs on Generation Model. If cost on Generation Model is 0, program will assign costs from standard table (either FUCOST or ITFOSS).

1 = Program will always use standard table values, ignoring <u>all</u> fuel cost overrides.

FUCOST(20)

Variable fuel cost, ¢/MBtu.
(Relative to year in which costs are quoted.)
Program will use these costs for:

1. All automatic unit additions.
2. Manual unit additions if variable fuel cost input is not supplied or if override fuel cost option is used (FCOPT).
3. Generation Model units if override fuel cost option (FCOPT) is used or if Generation Model fuel cost is 0.

<u>NOTE</u>: In the case of Type 2 units, program will examine ITFOSS matrix.

FUEL TYPE DATA AND COSTS (Continued)

IPATFC(20)

Fuel cost inflation pattern associated with fuel types.
Initialized to pattern 6.

FUICST(2)

Fixed nuclear fuel inventory charge, $/kW/yr. (Relative to year in which costs are quoted.)
Maximum of 2 nuclear thermal types.
Program will use these costs for:

1. All automatic nuclear unit additions.
2. Manual nuclear unit additions if variable fuel input is not supplied or if override fuel cost option is used (FCOPT).
3. Nuclear units described in Generation Model if override fuel cost option (FCOPT) is used or if Generation Model cost is 0.

IFTAB(6)

Fuel type assigned to each thermal unit type. (Maximum number of fuel types is 20.)
Fuel inflation pattern associated with IFTAB(2) will be used for lumped type 2 units.
Fuel inflation pattern associated with IFTAB(3) will be used for lumped type 3 units.
Program will use ITFOSS matrix to assign fuel types by company to type 2 units.
Fuel types may also be assigned unit by unit. (see page 5-55).

ITFOSS(25,2)
└── Company

Fuel types assigned to type 2 units, by company.
Initialized to IFTAB(2).

ITFOSS(X,1) Automatic and manual unit additions.

ITFOSS(X,2) Generation Model units.

KFTES(3)

Fuel type number associated with energy storage types.
(Use for energy storage types such as compressed air storage.)

FUEL TYPE DATA AND COSTS (Continued)

NUCBRK = _____,

Number of steps used to reflect nuclear fuel cost maturity.
Initialized to 5.
$1 \leq NUCBRK \leq 5$.

NUCSTP = _____,

Number of years for which each nuclear fuel cost step will prevail.
Initialized to 3.

FUBCPU(5,2)
- 5 — Nuclear Type (1 and 5 or 6)
- 2 — Variation

Multiplier on variable nuclear fuel costs to reflect maximum of five time variations.

FUICPU(5,2)

Multiplier on fixed nuclear fuel inventory charges to reflect maximum of five time variations.

		Default				Default
NMFUEL = 60H	_____	U308	LB.U	FUCOST = _____,	IPATFC = _____,	6
	_____	COAL	TON	_____,	_____,	6
	_____	GAS	MCF	_____,	_____,	6
	_____	OIL	BBL	_____,	_____,	6
	_____,			_____,	_____,	6
60H	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____,			_____,	_____,	6
60H	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____,			_____,	_____,	6
60H	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____			_____,	_____,	6
	_____,			_____,	_____,	6

HVTAB = _____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,
_____, _____, _____, _____,

FUICST = _____, _____,

FUEL TYPE DATA AND COSTS (Continued)

		Default
IFTAB = _____,		1
	_____,	2
	_____,	3
	_____,	4
	_____,	5
	_____,	6

KFTES = _____,
_____,
_____,

Automatic and Manual Units

ITFOSS(1,1) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

Generation Model Units

ITFOSS(1,2) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

		Default
FUBCPU(1,1) = _____,		1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0
FUBCPU(1,2) = _____,		1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0

		Default
FUICPU(1,1) = _____,		1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0
FUICPU(1,2) = _____,		1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0
	_____,	1.0

FUEL TYPE DATA AND COSTS (Continued)

PATFC(10,20)
- 10 — Inflation Multiplier
- 20 — Pattern Index

Fuel cost inflation multipliers.
Twenty patterns possible; each pattern may have up to 10 entries.
5% input as 1.05.
Initialized to 1.0.

IYRFC(10,20)
- 10 — Calendar Year
- 20 — Pattern Index

Year inflation multipliers become effective (4 digits, e.g., 1982).
If omitted, program will insert first year of study (for first entry only).

PATFC(1,1) = _____, _____,	_____, _____,	IYRFC(1,1) = _____, _____,	_____, _____, Pattern 1
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
PATFC(1,2) = _____, _____,	_____, _____,	IYRFC(1,2) = _____, _____,	_____, _____, Pattern 2
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
PATFC(1,3) = _____, _____,	_____, _____,	IYRFC(1,3) = _____, _____,	_____, _____, Pattern 3
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
PATFC(1,4) = _____, _____,	_____, _____,	IYRFC(1,4) = _____, _____,	_____, _____, Pattern 4
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
PATFC(1,5) = _____, _____,	_____, _____,	IYRFC(1,5) = _____, _____,	_____, _____, Pattern 5
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
PATFC(1,6) = _____, _____,	_____, _____,	IYRFC(1,6) = _____, _____,	_____, _____, Pattern 6
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,
	_____, _____,		_____, _____,

NOTE: The user may define a maximum of 20 different fuel cost inflation patterns.

OPERATION AND MAINTENANCE (O&M) COSTS

OMMW(6)	MW rating, set point, by thermal type, for fixed O&M.
OMDKW(6)	Fixed O&M, $/kW/yr, by thermal type. (Relative to year in which costs are quoted.)
OMDF(6)	D-factor, p.u., by thermal type, for fixed O&M.
OMDHR(6)	Variable costs, $/Fired Hour/MW or $/MWh. (Relative to year in which costs are quoted.) (See NDVOM, page 5-84.)
PATOM(10,6) 1 — Inflation Multiplier 2 — Type	O&M inflation multiplier, by thermal type. 5% input as 1.05. Initialized to 1.0.
IYROM(10,6) 1 — Calendar Year 2 — Type	Year inflation multiplier becomes effective (4 digits, e.g., 1982). If omitted, program will use first year of study (for first entry only).

OMMW = _____,	OMDKW = _____,	OMDF = _____,	OMDHR = _____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,

OPERATION AND MAINTENANCE (O&M) COSTS (Continued)

PATOM(1,1) = _____,
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PATOM(1,2) = _____,
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PATOM(1,3) = _____,
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PATOM(1,4) = _____,
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PATOM(1,5) = _____,
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PATOM(1,6) = _____,
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IYROM(1,1) = _____,
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IYROM(1,2) = _____,
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IYROM(1,3) = _____,
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IYROM(1,4) = _____,
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IYROM(1,5) = _____,
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IYROM(1,6) = _____,
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OPERATION AND MAINTENANCE (O&M) COSTS (Continued)

OMHYD(4)

Fixed O&M for conventional hydro and energy storage, $/kW/yr.
(Relative to year in which costs are quoted.)
(1) - Conventional Hydro.
(2)-(4) - Energy Storage.
May not input OMDB to override on individual unit basis.

OMVHYD(4)

Variable O&M for conventional hydro and energy storage, $/MWh of generation.
(Relative to year in which costs are quoted.)
(1) - Conventional Hydro.
(2)-(4) - Energy Storage.
May not input OMVDB to override on individual unit basis.

PATHOM(10,4)
- 10 — Inflation Multiplier
- 4 — Type

O&M inflation multiplier.
5% input as 1.05.
Initialized to 1.0.

IYRHOM(10,4)
- 10 — Calendar Year
- 4 — Type

Year inflation multiplier becomes effective (4 digits, e.g., 1982).
If omitted, program will insert first year of study (for first year only).

OMHYD = _____, _____, _____, _____,

OMVHYD = _____, _____, _____, _____,

Conventional Hydro
Energy Storage 1
Energy Storage 2
Energy Storage 3

0025517

OPERATION AND MAINTENANCE (O&M) COSTS (Continued)

PATHOM(1,1) =	_____,	_____,	IYRHOM(1,1) =	_____,	_____,	Conv. Hydro
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
PATHOM(1,2) =	_____,	_____,	IYRHOM(1,2) =	_____,	_____,	Energy Storage Type 1
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
PATHOM(1,3) =	_____,	_____,	IYRHOM(1,3) =	_____,	_____,	Energy Storage Type 2
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
PATHOM(1,4) =	_____,	_____,	IYRHOM(1,4) =	_____,	_____,	Energy Storage Type 3
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	
	_____,	_____,		_____,	_____,	

RETIREMENT POLICY

NYRET(10)

Unit life, in years, by type for Generation Model and manually installed units. Also see IYRAUT, page 5-83, and NSICMT, page 5-85.

		Default	
NYRET =	_____,	40	Thermal Type 1
	_____,	40	Thermal Type 2
	_____,	40	Thermal Type 3
	_____,	40	Thermal Type 4
	_____,	40	Thermal Type 5
	_____,	40	Thermal Type 6
	_____,	1000	Conventional Hydro
	_____,	1000	Energy Storage Type 1
	_____,	1000	Energy Storage Type 2
	_____,	1000	Energy Storage Type 3

0 0 2 5 1 7

FORCED OUTAGE RATES

FORMW(3,6) — MW ratings for mature forced outage rate standard table. Three MW ratings for each of the six thermal types.

FORATE(3,6) — Mature forced outage rate, p.u., associated with the MW ratings.
5% input as 0.05.

Mature forced outage rate is calculated by linear interpolation between ratings. It is assumed constant below the minimum and above the maximum ratings.

FORMW(1,1) = _____,		FORATE(1,1) = _____,	Type 1
_____,		_____,	
_____,		_____,	
FORMW(1,2) = _____,		FORATE(1,2) = _____,	Type 2
_____,		_____,	
_____,		_____,	
FORMW(1,3) = _____,		FORATE(1,3) = _____,	Type 3
_____,		_____,	
_____,		_____,	
FORMW(1,4) = _____,		FORATE(1,4) = _____,	Type 4
_____,		_____,	
_____,		_____,	
_____,		_____,	
FORMW(1,5) = _____,		FORATE(1,5) = _____,	Type 5
_____,		_____,	
_____,		_____,	
FORMW(1,6) = _____,		FORATE(1,6) = _____,	Type 6
_____,		_____,	
_____,		_____,	

PLANNED OUTAGE RATES

PORMW(3,6) — MW ratings, for mature planned outage rate standard table. Three MW ratings for each of the six thermal types.

PORATE(3,6) — Mature planned outage rate, p.u., associated with the MW ratings.
5% input as 0.05.

Mature planned outage rate is calculated by linear interpolation between ratings. It is assumed constant below the minimum and above the maximum ratings.

PORMW(1,1) = _____,	PORATE(1,1) = _____,	Type 1
_____,	_____,	
_____,	_____,	
PORMW(1,2) = _____,	PORATE(1,2) = _____,	Type 2
_____,	_____,	
_____,	_____,	
PORMW(1,3) = _____,	PORATE(1,3) = _____,	Type 3
_____,	_____,	
_____,	_____,	
PORMW(1,4) = _____,	PORATE(1,4) = _____,	Type 4
_____,	_____,	
_____,	_____,	
PORMW(1,5) = _____,	PORATE(1,5) = _____,	Type 5
_____,	_____,	
_____,	_____,	
PORMW(1,6) = _____,	PORATE(1,6) = _____,	Type 6
_____,	_____,	
_____,	_____,	

MANUAL MAINTENANCE

If manual maintenance is not used, the program will automatically schedule planned maintenance for production costing and reliability calculations.

IPATRN(12,25)
- 12 = Month
- 25 = Pattern Index

Manual maintenance patterns.
Maximum of 25 patterns.
0 = Unit not on maintenance in that month.
1 = Unit on maintenance in that month.
Initialized to 0.
(See MPATDB, page 5-57.)

NOTE: The number of manual maintenance patterns input to the Data Preparation Program is the maximum number of patterns that will be printed by the Generation Planning Program.

IPATRN(1,1) = _____,
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IPATRN(1,2) = _____,
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IPATRN(1,3) = _____,
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IPATRN(1,4) = _____,
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IPATRN(1,5) = _____,
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IPATRN(1,6) = _____,
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MANUAL MAINTENANCE (Continued)

IPATRN(1,7) = _____,
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IPATRN(1,8) = _____,
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IPATRN(1,9) = _____,
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IPATRN(1,10) = _____,
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IPATRN(1,11) = _____,
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IPATRN(1,12) = _____,
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IPATRN(1,13) = _____,
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IPATRN(1,14) = _____,
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IPATRN(1,15) = _____,
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_____,

NOTE: The user may define a maximum of 25 maintenance patterns.

THERMAL CHARACTERISTICS

XHRDB(6) — Net station heat rate, Btu/kWh, at production cost maximum rating.
Applied to units considered for automatic additions.
Also applied to manual additions and Generation Model units if heat rate data not supplied for individual units.

XPOW1(6) — Minimum load output in p.u. of production cost full load output.
Applied to units considered for automatic additions.
Also applied to manual additions and Generation Model units if minimum load data not supplied for individual units.

XFIN1(6) — Fuel input at minimum rating in p.u. of production cost full load fuel input.
Applied to units considered for automatic additions.
Also applied to manual additions and Generation Model units if minimum load fuel input data not supplied for individual units.

Example: 25% of full load output requires 28% of full load fuel input.

XHRDB = _____,
_____,
_____,
_____,
_____,
_____,

XPOW1 = _____,
_____,
_____,
_____,
_____,
_____,

XFIN1 = _____,
_____,
_____,
_____,
_____,
_____,

PLANT AND REGION IDENTIFICATION

IPNAME(2,100) — Plant name, 12 characters each.

IREGN(100) — Region number for each plant (1 ≤ IREGN ≤ 25). Default is 25.

Plant ID	12-Character Plant Name (IPNAME =)	Region ID (IREGN =)	Plant ID	12-Character Plant Name (IPNAME =)	Region ID (IREGN =)
1	60H_____,	_____,	26	60H_____,	_____,
2	_____;	_____;	27	_____,	_____,
3	_____,	_____,	28	_____,	_____,
4	_____,	_____,	29	_____,	_____,
5	_____,	_____,	30	_____,	_____,
6	60H_____,	_____,	31	60H_____,	_____,
7	_____,	_____,	32	_____,	_____,
8	_____,	_____,	33	_____,	_____,
9	_____,	_____,	34	_____,	_____,
10	_____,	_____,	35	_____,	_____,
11	60H_____,	_____,	36	60H_____,	_____,
12	_____,	_____,	37	_____,	_____,
13	_____,	_____,	38	_____,	_____,
14	_____,	_____,	39	_____,	_____,
15	_____,	_____,	40	_____,	_____,
16	60H_____,	_____,	41	60H_____,	_____,
17	_____,	_____,	42	_____,	_____,
18	_____,	_____,	43	_____,	_____,
19	_____,	_____,	44	_____,	_____,
20	_____,	_____,	45	_____,	_____,
21	60H_____,	_____,	46	60H_____,	_____,
22	_____,	_____,	47	_____,	_____,
23	_____,	_____,	48	_____,	_____,
24	_____,	_____,	49	_____,	_____,
25	_____,	_____,	50	_____,	_____,

NOTE: A maximum of 100 plants can be defined.

PLANT AND REGION IDENTIFICATION (Continued)

KPLANT(6) — Plant index for assigning individual units to plants by unit type. May be overridden unit by unit.

IRNAME(2,25) — Region name, 12 characters each.

KPLANT = _____,
_____,
_____,
_____,
_____,
_____,

Region ID	12-Character Region Name
1	IRNAME = 60H_____
2	_____
3	_____
4	_____
5	_____,
6	60H_____
7	_____
8	_____
9	_____
10	_____,
11	60H_____
12	_____
13	_____
14	_____
15	_____,
16	60H_____
17	_____
18	_____
19	_____
20	_____,
21	60H_____
22	_____
23	_____
24	_____
25	_____,

ENVIRONMENTAL DATA (OGP-6A only)

KEYENV = _____,

Option to perform fuel consumption and environmental discharge calculations.
0 = Omit.
1 = Calculate fuel consumption and emissions (OGP-6A).
-1 = Calculate fuel consumption only (OGP-6).

Thermal type data:

HREJ (6)	Atmospheric allocation of waste heat rejection, (p.u.). (1 - HREJ rejected to water.)
SORM (6)	Sulfur removal efficiency, (p.u.).
PREFF (6)	Precipitator efficiency, (p.u.).

HREJ = _____,	SORM = _____,	PREFF = _____,
_____,	_____,	_____,
_____,	_____,	_____,
_____,	_____,	_____,
_____,	_____,	_____,
_____,	_____,	_____,

Fuel type data:

SOTAB (20)	Sulfur content, lbs/unit fuel.
PCSULF (20)	Percent sulfur (for printing purposes only).
CFCTAB (3,20)	Carbon monoxide coefficients (lbs/hr, lbs/MWh, Scalar).
CFNTAB (3,20)	Nitrogen oxide coefficients (lbs/hr, lbs/MWh, Scalar).
CFPTAB (3,20)	Particulate coefficients (lbs/hr, lbs/MWh, Scalar).
CFWTAB (2,20)	Water consumption coefficients (gals/hr, gals/MWh).

ENVIRONMENTAL DATA (OGP-6A only) (Continued)

Fuel type data (continued):

SOTAB = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

PCSULF = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

CFCTAB(1,1) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

CFNTAB(1,1) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

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_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

ENVIRONMENTAL DATA (OGP-6A only) (Continued)

Fuel type data (continued):

CFPTAB(1,1) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

CFWTAB(1,1) = _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,
_____, _____, _____, _____, _____,

FUEL AND ENERGY LIMITS (OGP-6A only)

LIMIT = _____,

0 = No limiting factors.
1 = Fuel and energy limits apply.
-1 = Only the energy limits apply.
-2 = Only the fuel limits apply.

LIMCF = _____,

0 = Carry-over of unused energy or fuel not allowed.
1 = Carry over the unused portion of the limit for energy or fuel consumption into the next month (carry-over into next year is not allowed).

ELIMIT(6)

Energy limiting factor by thermal unit type (assigned to each unit of the type).
0 = No limit.
>0 and ≤1.0 = Capacity factor limit.
>1.0 = Actual MWh limit.

PUELIM(12,6)
- 12 — Month
- 6 — Thermal Type

Monthly p.u. multiplier for energy limits. Limit will be multiplied by this factor to establish actual energy limit for a particular month.
Initialized to 1.0.

FLIMIT(20)

Fuel consumption limit by fuel type in units of fuel usage.
Associated input HVTAB, page 5-28.

PUFLIM(12,20)
- 12 — Month
- 20 — Fuel Type

Monthly p.u. multiplier for fuel limits. Limit will be multiplied by this factor to establish actual fuel limit for a particular month.
Initialized to 1.0.

ELIMIT = _____,
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FUEL AND ENERGY LIMITS (OGP-6A only) (Continued)

PUELIM(1,1) = _____,
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PUELIM(1,2) = _____,
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PUELIM(1,3) = _____,
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PUELIM(1,4) = _____,
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PUELIM(1,5) = _____,
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PUELIM(1,6) = _____,
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FLIMIT = _____,
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PUFLIM(1,1) = _____,
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PUFLIM(1,2) = _____,
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FUEL AND ENERGY LIMITS (OGP-6A only) (Continued)

PUFLIM(1,3) = _____,
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PUFLIM(1,4) = _____,
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PUFLIM(1,5) = _____,
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PUFLIM(1,6) = _____,
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PUFLIM(1,7) = _____,
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PUFLIM(1,8) = _____,
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PUFLIM(1,9) = _____,
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PUFLIM(1,10) = _____,
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PUFLIM(1,11) = _____,
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PUFLIM(1,12) = _____,
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PUFLIM(1,13) = _____,
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PUFLIM(1,14) = _____,
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FUEL AND ENERGY LIMITS (OGP-6A only) (Continued)

PUFLIM(1,15) = _____,
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PUFLIM(1,16) = _____,
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PUFLIM(1,17) = _____,
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PUFLIM(1,18) = _____,
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PUFLIM(1,19) = _____,
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PUFLIM(1,20) = _____,
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DESIGN CRITERIA OPTIONS

MONPR = _____,

Option to identify month to be used for percent reserve calculations. Program will use installed capacity, hydro and contracts relative to MONPR.

0 = Program will set MONPR equal to month associated with annual peak load.

X = Program will use MONPR specified by user.

STEP = _____,

MW step of probability table (optional).
If inputted, program will use user-supplied step size throughout study; may change annually at Generation Planning level.
Default (recommended):
Program will determine MW step each year, based on the following table:

Annual Peak ≥ MW	Step Size MW
0	5
2 000	10
10 000	25
50 000	50
100 000	100
200 000	200

ANNUAL POOL PEAKS

POOLMW (30)

Option to override annual pool peaks read from the Load Model file, for each year of OGP study.
0 = Use MW loads from original Load Model.
X = Use new MW annual pool peak.

May override all annual peaks or selected years only.

If Load Model contains more than 1 company, program will use company/pool ratios as defined on original Load Model.

POOLMW = _____, _____, _____,
_____, _____, _____,
_____, _____, _____,
_____, _____, _____,
_____, _____, _____,
_____, _____, _____,
_____, _____, _____,
_____, _____, _____,
_____, _____, _____,
_____, _____, _____,

0025

OUTPUT OPTIONS

M3D = _____,

Option to receive case identification, program error messages and end of calculation message over terminal.
0 = Omit.
7 = Output file to be printed at terminal.
Initialized to 7.

GMOUT = _____,

Option to print Generation Model file that was read.
0 = Do not print.
1 = Print.
Initialized to 1.

MLOUT = _____,

Option to print master list of units.
0 = Do not print.
1 = Print.
Initialized to 1.

KPRINT(30)

Option to print Generation Model, by year.
0 = Omit.
1 = Print.

LPRINT(30)

Option to print Load Model, by year.
0 = Omit.
1 = Print.
Initialized to LPRINT(1) = 1.

KPRINT = _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,

LPRINT = _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,

Ending $ End of General Data.

(REPLACE COMMA FOLLOWING LAST PIECE OF DATA WITH $)

GENERATION MODEL OVERRIDES AND MANUAL INSTALLATIONS

It is possible to override, on a unit-by-unit basis, unit characteristics read from the Generation Model as well as those assigned from the standard tables by the Data Preparation Program. It is also possible to specify additional units to be included in the system. In either case, the original Generation Model will not be changed.

The Generation Model overrides are done sequentially by record. Each unit is referenced by its position within the record, which can have a maximum of 25 units.

The manually installed units, which are input with a maximum of 25 units per record, follow the Generation Model overrides. Any unit characteristics not input will be assigned from the standard tables. As with the Generation Model, manually installed units are referenced by their position in the record.

Each record of input data, whether it is an override or a manual installation, must begin with a $INPUT and must close with an ending $.

NOTE: All costs are input relative to the year in which costs are quoted.

The variables used for the Generation Model overrides and manually installed units are the same variables used to input data to the Generation Model Program (page 4-5). They are also listed below:

NREAD	In general data, it indicates the first Generation Model record to be modified. In override data, it indicates the next Generation Model record to be modified.
MANUAL	Option to add units manually. Input in general data. 0 = No manual additions. 1 = Manual additions data will be supplied.
KMORE	Input with manual additions data. 0 = More sets of manual additions data will be read. 1 = Current set is last set of manual data.
$INPUT	Each record of input data begins with $INPUT.
IMAX = _____,	Number of units described in record. Input only if $IMAX_{new} \neq IMAX_{old}$. IMAX $\leq$ 25. If IMAX=0, entire record will be ignored.
NAMEDB(2,25)	Station identification (12 characters).

GENERATION MODEL OVERRIDES AND MANUAL INSTALLATIONS (Continued)

KINDB(25)	Types 1-6 = Thermal. Type 7 = Conventional Hydro. Types 8-10 = Energy Storage.
KCODB(25)	Company index in pool list.
*KPLDB(25)	Plant ID.
INSTDB(25)	Year of installation - 1900. e.g., input 72 if the unit was installed in 1972.
MINTDB(25)	Month of installation, e.g., input 5 if May. Omit if January.
KRETDB(25)	Retirement year (4 digits).
MRETDB(25)	Month of retirement, e.g., input 5 if May. Omit if January.
*INORDB(25)	Original installation year (4 digits). Input only for units that are installed as direct replacements for other units on the system.
OPCTDB(25)	Percent owned by company. 0 = 100% owned. 25 = 25% owned.
*CAPDB(25)	Maximum net output (MW).
*HRDB(25)	Net station heat rate (Btu/kWh).
*PMINDB(25)	P.U. MW output at minimum rating. If < 1, computed as PMINDB*MW (MW is production cost rating.
*FMINDB(25)	Fuel input at minimum rating (p.u.). If < 1, computed as FMINDB*HR*MW*0.001 (MW is production cost rating).
*PMAXDB(25)	Production cost rating. If < 1, computed as PMAXDB*CAPDB..
*FMAXDB(25)	Fuel input at maximum rating. If < 1, computed as FMAXDB*HR*MW*0.001 (MW is production cost rating).

NOTE: If partially owned units are described in more than one record, the user must override the information in all pertinent records.

* Indicates variables that are input only for thermal units, Types 1-6.

GENERATION MODEL OVERRIDES AND MANUAL INSTALLATIONS (Continued)

*KFTDB(25)	Fuel type ID.
*KFIDB(25)	Fuel cost inflation pattern number.
*FPCTDB(3,25)	Percent of time for 3 fuel types, e.g., 60, 40, 0. Sum of the 3 must equal 100.
*FCDB(3,25)	Cost (¢/MBtu) for 3 fuel types. NOTE: FPCTDB and FCDB can be replaced by CMBTU.
*CMBTU(25)	Fuel cost (¢/MBtu), non-nuclear thermal units only. NOTE: CMBTU replaces FPCTDB and FCDB.
*FUICDB(5,25)	Fuel inventory cost ($/yr/kW).
*FUBCDB(5,25)	Fuel burnup cost (¢/MBtu).
*OMDB(25)	Fixed O&M ($/kW/yr).
*OMVDB(25)	Variable O&M ($/hr/MW or $/MWh).
DKWDB(25)	Plant cost ($/kW).
*FORDB(25)	Mature forced outage rate (p.u.).
*PORDB(25)	Mature planned outage rate (p.u.).
*MPATDB(25)	ID of manual maintenance pattern.
*MRDB(25)	Unit minimum uptime rule.
GMINDB(12,25)	Monthly minimum output (MW), conventional hydro.
GMAXDB(12,25)	Monthly maximum output (MW), conventional hydro.
ENGYDB(12,25)	Monthly energy (GWh), conventional hydro.
PONDES(12,25)	Monthly pond size or storage capacity (MWh), energy storage.
PUMPES(12,25)	Monthly pump or charging rating (MW), energy storage.
GENES(12,25)	Monthly maximum net output (MW), energy storage.

NOTE: If partially owned units are described in more than one record, the user must override the information in all pertinent records.

* Indicates variables that are input only for thermal units, Types 1-6.

GENERATION MODEL OVERRIDES AND MANUAL INSTALLATIONS (Continued)

If an input variable is omitted, the program will assign the following standard table values:

NAMEDB	COMMITTED n, where n = 1 through 84.
KPLDB	Plant ID defined in KPLANT by unit type.
KRETDB	Retirement policy in years, defined in NYRET, by unit type.
INORDB	INSTDB for unit.
HRDB	Net station heat rate Btu/kWh, defined in XHRDB, by unit type.
*PMINDB	MW output at minimum rating, defined in XPOW1, by unit type.
*FMINDB	Fuel input at minimum rating, defined in XFIN1, by unit type.
*PMAXDB	CAPDB for unit.
*FMAXDB	(Heat rate)*(rating)*(0.001), where heat rate is Btu/kWh as defined by XHRDB or HRDB.
KFTDB	Fuel type defined in IFTAB, by unit type. If type 2 unit, program will examine ITFOSS(K,N), where K is company index and N=1, if automatic or manual addition unit, and N=2 if Generation Model unit.
KFIDB	Fuel inflation pattern associated with the fuel type assigned to the unit by user input, IFTAB or ITFOSS (see KFTDB).
CMBTU	Fuel cost associated with the fuel type assigned to the unit by user input, IFTAB or ITFOSS (see KFTDB).

* Denotes variables for which the user must input -1 in order to have the program assign a 0 rather than the standard table value.

GENERATION MODEL OVERRIDES AND MANUAL INSTALLATIONS (Continued)

FUICDB	$/yr/kW defined in FUICST(N) where N=1, if first nuclear type and N=2, if second nuclear type. Time variations defined by FUICPU(I,N) will also be applied.
FUBCDB	¢/MBtu defined in FUCOST(K), where K refers to unit fuel type. Time variations defined in FUBCPU(I,N) where I=time variation, N=1, if first nuclear type and N=2, if second nuclear type.
	NOTE: Must input as many values for FUICDB and FUBCDB as required by NUCBRK (page 5-30).
*OMDB	Standard table, fixed O&M, by unit type.
*OMVDB	Standard table, variable O&M, by unit type.
*DKWDB	Standard table plant cost, by unit type.
*FORDB	Standard table, forced outage rate, by unit type.
*PORDB	Standard table, planned outage rate, by unit type.
MRDB	KCYCLE rule associated with unit type. (See Generation Planning input.)
Ending $	End of record.

(REPLACE COMMA FOLLOWING LAST PIECE OF DATA IN RECORD WITH $)

* Denotes variables for which the user must input -1 in order to have the program assign a 0 rather than the standard table value.

GENERATION MODEL OVERRIDES AND MANUAL INSTALLATIONS (Continued)

ENVIRONMENTAL DISCHARGE OVERRIDES (OGP-6A ONLY)

The following variables are available only in OGP-6A:

HREJDB(25)	Atmospheric heat rejection, (p.u.).
SORMDB(25)	Sulfur removal, (p.u.).
PREFDB(25)	Precipitator efficiency, (p.u.).
CFCODB(3,25)	Carbon monoxide coefficients. (1) - lbs/hr (2) - lbs/MWh (3) scalar.
CFNODB(3,25)	Nitrogen oxide coefficients. (1) lbs/hr (2) - lbs/MWh (3) scalar.
CFPTDB(3,25)	Particulate coefficients. (1) - lbs/hr (2) lbs/MWh (3) scalar.
CFWCDB(2,25)	Water consumption coefficients. (1) - gals/hr (2) gals/MWh.
ELIMDB(25)	Energy limit override input. P.U. multipliers associated with unit still apply.

If an input variable is omitted, the program will assign the following standard table values:

*HREJDB	P.U. heat rejection defined in HREJ(K), where K refers to unit thermal type, 1-6.
*SORMDB	P.U. sulfur removal defined in SORM(K), where K refers to unit thermal type, 1-6.
*PREFDB	P.U. precipitator efficiency defined in PREFF(K), where K refers to unit thermal type, 1-6.
*CFCODB	Carbon monoxide coefficients defined in CFCTAB(N,K), where K refers to unit fuel type, 1-20.
*CFNODB	Nitrogen oxide coefficients defined in CFNTAB(N,K), where K refers to unit fuel type, 1-20.
*CFPTDB	Particulate coefficient defined in CPFTAB(N,K), where K refers to unit fuel type, 1-20.
*CFWCDB	Water consumption coefficient defined in CFWTAB(N,K), where K refers to unit fuel type, 1-20.
*ELIMDB	Energy limit associated with assigned thermal type.

* Denotes variables for which the user must input -1 in order to have the program assign a 0 rather than the standard table value.

GENERATION PLANNING PROGRAM

For the Generation Planning Program, the following order of input data must be observed:

1. General data.

2. Annual data (optional).

   Annual data for year XXXX will be read by the program only if the previous set of data contained IYREAD=XXXX.

Unless otherwise stated, all values have been initialized to 0.

GENERATION PLANNING

ALPHABETIC LISTING OF INPUT VARIABLES

Variable	Page	Variable	Page	Variable	Page	Variable	Page
ADJPSH	5-74	ID2	5-89	KSPARE(4)	5-88	*NTOTAL	5-89
BTUNIT	5-90	IDCTRT	5-76	KWHERE	5-74	*NTRIM	5-81
CAP	5-90	IFCPAT	5-91	KZONE	5-68	NUMZON	5-68
CAPCOS	5-91	*IFSP	5-84	LCOMIT	5-68	NYPOVR	5-82
CEFFES	5-89	IFTYPE	5-90	LIMCF	5-92	*NYPWTH	5-89
COEFCO	5-92	IMSTYP	5-65	LIMIT	5-92	NWUSER	5-87
COEFNO	5-92	*IMSYRS	5-65	LMAINT	5-67	OM	5-91
COEFPT	5-92	INHMNT	5-67	LMBSES	5-82	OMHYD	5-89
COEFWC	5-92	IPATRN	5-89	LPLOLP	5-87	OMV	5-91
CSTENG	5-63	IPLANT	5-90	LSPARE(1)	5-87	OMVHYD	5-89
CTRINC	5-76	IREGN	5-90	LSPARE(4)	5-68	PCTRIM	5-81
CTRTMW	5-76	IVCSUB	5-83	*M3D	5-87	POR	5-90
DKWYCT	5-76	IYRAUT	5-83	*M4D	5-88	PORSHK	5-65
DMWHCT	5-76	IYREAD	5-84	MATOR	5-79	POW1	5-90
ECOMIT	5-69,5-70	KBREAK	5-68	MIX	5-79	POW2	5-90
EDISP	5-69,5-72	KCALCL	5-84	MMPAT	5-90	PRBMIN	5-85
EERATE	5-63	KCTRT	5-76	MNTPKM	5-67	PRECEF	5-92
EEPRNT	5-88	KCYCLE	5-68	MONAUT	5-79	PRGOAL	5-78
ELIMIT	5-92	KEYCMT	5-69	MONRET	5-83	PROVER	5-82
ESIZEG	5-89	KEYENV	5-84	MPRINT	5-86	PUELIM	5-92
ESIZEP	5-89	KEYPRC	5-78	MSTRUN	5-90	PUFLIM	5-92
ESIZES	5-89	KEYPSH	5-74	MYRAUT	5-80	PUHREJ	5-92
EULIM	5-92	*KEYSUM	5-87	MYREXT	5-67	PUSORM	5-92
EXCHYD	5-74	KIND	5-90	NALLOC	5-85	PWRATE	5-63
EXCMAX	5-74	KLOLP	5-78	NATRIM	5-81	RANFOR	5-68
EXDMWH	5-63	*KODE2	5-86	NDVOM	5-84	RATEIC	5-76
EXMXPU	5-63	*KODE3	5-86	NENTRY	5-78	RATEPC	5-76
EXRATE	5-63	KODE(6)	5-87	*NFIRST	5-85	RELENG	5-74
FAIL	5-79	KODE(7)	5-84	NHCTRT	5-76	SHKFOR	5-65
FIN1	5-90	KODE(9)	5-88	NIMMOR	5-65	SHKPOR	5-65
FIN2	5-90	KOPT	5-79	NKODE(1)	5-84	SOCONT	5-92
FIXCHG	5-89	KOPOVR	5-82	NKODE(2)	5-81	SPRES	5-64
FLIMIT	5-92	KORDER	5-74	NKODE(4)	5-85	SRCRDT	5-64
FOR	5-90	KOSTPC	5-84	NKODE(5)	5-80	SRMULT	5-64
FORSHK	5-65	*KPCUMT	5-87	NKODE(7)	5-85	STEP	5-84
FUCOST	5-91	KPRENV	5-86	NKODE(8)	5-65	TEMPC	5-91
FUIC	5-91	KPRES	5-88	NKODE(10)	5-87	*TYCST	5-84
GRMLTI	5-80	KPRSMY	5-88	NLPW	5-79	UNCLL	5-81
GRMLTP	5-80	KPRSUM	5-87	NNAHED	5-89	UNCLM	5-81
GSTART	5-75	*KPSUM2	5-87	NNMANY	5-89	UPFUEL	5-85
HRINMX	5-78	*KPSUM4	5-88	NOKOPT	5-79	YRINMX	5-78
HYDFCR	5-89	KPVIOL	5-88	NSBASE	5-80		
ID1	5-89	KRMAX	5-80	NSICMT	5-85		

NOTE: All data input in Generation Planning, except those indicated by *, may be overriden annually through the use of IYREAD.

GENERAL DATA

$INPUT

PWRATE = _____,

Present worth interest rate.
Initialized to 1.06.

EXMXPU = _____,

Option to sell off-peak excess energy when sum of minimum generation exceeds load.
0 = Do not sell.
Program will print error message, summarize and stop.
X.XX = Maximum sell limit, percent of sum of minimum loadings.
e.g., 0.25 is 25 percent.

EXDMWH = _____,

Cost associated with sale of off-peak excess energy ($/MWh).
(Relative to year in which costs are quoted.)

EXRATE = _____,

Inflation rate associated with off-peak excess sale.
6% input as 1.06.
Initialized to 1.0.

CSTENG = _____,

Cost of emergency tie assistance in production costing calculations, $/MWh.
(Relative to year in which costs are quoted.)
Initialized to 10.

EERATE = _____,

Emergency energy cost inflation rate.
Initialized to 1.0.

SPINNING RESERVE

SPRES = _____,

If SPRES < 0.0, program calculates:
Spinning reserve = SPRES*MW rating of largest unit in system and not on maintenance in month being studied.

If 0.0 ≤ SPRES < 1.0, program calculates:
Spinning reserve = SPRES*monthly peak load in MW.

If SPRES ≥ 1.0, spinning reserve = SPRES in MW.

SRMULT = _____,

Minimum spinning reserve (MW).
If inputted, program will compute spinning reserve using SPRES rules and will use larger of SRMULT or calculated spinning reserve.

SRCRDT = _____,
_____,
_____,

Maximum unused energy storage capacity to take as spinning reserve credit (p.u. of total energy storage generating capacity).

OUTAGE RATE IMMATURITY MULTIPLIERS

NKODE(8) = _____,
or
NIMMOR = _____,

Outage rate immaturity multipliers to use.
0 = Use single-step multipliers.
1 = Use multi-step multipliers.

SHKFOR(6)

Single-step immaturity multipliers on forced outage rate, by type.
10% increase input as 1.10.
Initialized to 1.0.

SHKPOR(6)

Single-step immaturity multipliers on planned outage rate, by type.
15% increase input as 1.15.
Initialized to 1.0.

IMSTYP(6)
or
IMSYRS = _____,

Number of years for which single-step immature forced and planned outage rates apply.

FORSHK(10,6)
Step
Thermal Type

Per-unit immaturity multiplier for forced outage rate.
15% increase input as 1.15.
Each step remains in effect for one year.

PORSHK(10,6)
Step
Thermal Type

Per-unit immaturity multiplier for planned outage rate input.
15% increase input as 1.15.
Each step remains in effect for one year.

SHKFOR = _____, _____, _____, _____, _____, _____,

SHKPOR = _____, _____, _____, _____, _____, _____,

IMSTYP = _____, _____, _____, _____, _____, _____,

OUTAGE RATE IMMATURITY MULTIPLIERS (Continued)

FORSHK(1,1) = _____,
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FORSHK(1,2) = _____,
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FORSHK(1,3) = _____,
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FORSHK(1,4) = _____,
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FORSHK(1,5) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

FORSHK(1,6) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

PORSHK(1,1) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
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_____,
_____,

PORSHK(1,2) = _____,
_____,
_____,
_____,
_____,
_____,
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_____,

PORSHK(1,3) = _____,
_____,
_____,
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_____,
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PORSHK(1,4) = _____,
_____,
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PORSHK(1,5) = _____,
_____,
_____,
_____,
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_____,
_____,

PORSHK(1,6) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

MAINTENANCE SCHEDULING

MNTPKM = _____,

Option to inhibit program from scheduling planned maintenance during peak load month.
- 0 = Normal maintenance scheduling.
- 1 = Do not maintain units in peak load month.
- -XX = Do not maintain units in Month XX.

INHMNT = _____,
_____,
_____,
_____,
_____,

Option to define maximum of 5 months in which to inhibit scheduling of planned maintenance.
- 0 = Normal maintenance scheduling.
- N = Do not schedule maintenance in month N.
- -1 = Do not schedule maintenance in peak load month.

Initialized to INHMNT = 5*0.

If INHMNT data is not supplied, program will use MNTPKM data.

LMAINT = _____,

Option to save/read production cost maintenance schedule on File 14.
- 0 = Omit.
- 1 = Save annual maintenance schedule on File 14. Must provide appropriate control card.
- -1 = Read annual maintenance schedule from File 14, which had been written to by a previous OGP execution; must provide appropriate control card.

NOTE: This option may be used only on fixed, i.e., manual expansion runs, not on automatic expansion runs.

MYREXT = _____,

Option to schedule planned maintenance for units installed/retired in mid-year.
- 0 = Do not schedule planned maintenance.
- 1 = Schedule prorated planned maintenance or pertinent manual maintenance pattern.

Initialized to 0.

0 0 2 5 1 7

THERMAL UNIT COMMITMENT AND DISPATCH

		Default	
KCYCLE =	_____,	1	Minimum uptime rule for each thermal type. Rule -1 - Must run unit. Rule 1 - If committed, must run all week. Rule 2 - If committed for weekday, must run all weekdays. If committed for weekend, must run all weekend. Rule 3 - If committed, must run all hours in commitment zone period.
	_____,	2	
	_____,	3	
	_____,	3	
	_____,	3	
	_____,	3	
NUMZON =	_____,		Number of commitment zones (maximum of 6). Initialized to 6.
		Default	
KZONE =	_____,	4	Number of hours in each commitment zone. Weekday.
	_____,	4	
	_____,	4	
	_____,	12	
	_____,	12	Weekend.
	_____,	12	
KBREAK =	_____,	1	Index in KZONE list which points to first and last zone in weekday and first and last zone in weekend day.
	_____,	4	
	_____,	5	
	_____,	6	
LCOMIT = or LSPARE(4) =	_____,		Optional treatment of must-run units in determining number of units committed to meet load plus spinning reserve. 0 = Use maximum rating of must-run units. 1 = Use minimum rating of must-run units and then delta sections, if economical. Initialized to 0.
RANFOR =	_____,		Option to consider random forced outages in production costing calculations. 0 = Do not use random forced outages; extend maintenance by amount of forced outage rate. +1 = Use random forced outages in decision passes and optimum pass. -1 = Use random forced outages in optimum pass only. In decision passes, program will extend maintenance by amount of forced outage rate.

THERMAL UNIT COMMITMENT AND DISPATCH (Continued)

KEYCMT = _____,

Option to use in determining commitment list.
- 0 = Order unit commitment by full load operating cost (regular production cost priority).
- 1 = Use weighted costs (see ECOMIT). In OGP-6A, all environmental characteristics are considered (see ECOMIT, page 5-70).
- -1 = Order unit commitment by uptime rules and then by cost. Costs will include ECOMIT factors.

COMMITMENT AND DISPATCH WEIGHTING FACTORS (OGP-6 only)

ECOMIT(25) — Regional weighting coefficients for full load $/MWh used in unit commitment.

EDISP(25) — Regional weighting coefficients for incremental $/MWh used in unit dispatch.

ECOMIT = _____,
_____,
_____,
_

ENVIRONMENTAL WEIGHTING FACTORS (OGP-6A only)

ECOMIT(25,8)
- 25 — Region
- 8 — Emission Factor

Weighting coefficients, by region and emission factor, for determining unit commitment.

Full Load, $/MWh	Heat Rejection into Atmosphere MBtu/MWh	Heat Rejection into Water MBtu/MWh	SO_2, Tons/MWh
ECOMIT(1,1) = _____,	ECOMIT(1,2) = _____,	ECOMIT(1,3) = _____,	ECOMIT(1,4) = _____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,

ENVIRONMENTAL WEIGHTING FACTORS (OGP-6A only) (Continued)

NO_X, Tons/MWh	CO, Tons/MWh	Particulate, Tons/MWh	Water Consumption, 1000 gal/MWh
ECOMIT(1,5) = _____,	ECOMIT(1,6) = _____,	ECOMIT(1,7) = _____,	ECOMIT(1,8) = _____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,

ENVIRONMENTAL WEIGHTING FACTORS (OGP-6A only) (Continued)

EDISP(25,8)
- 8 — Emission Factor
- 25 — Region

Weighting coefficients, by region and by emission factor, for determining unit dispatch.

Incremental, $/MWh	Heat Rejection into Atmosphere MBtu/MWh	Heat Rejection into Water MBtu/MWh	SO_2, Tons/MWh
EDISP(1,1) = _____,	EDISP(1,2) = _____,	EDISP(1,3) = _____,	EDISP(1,4) = _____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,

ENVIRONMENTAL WEIGHTING FACTORS (OGP-6A only) (Continued)

NO_X, Tons/MWh	CO, Tons/MWh	Particulate, Tons/MWh	Water Consumption, 1000 gal/MWh
EDISP(1,5) = _____,	EDISP(1,6) = _____,	EDISP(1,7) = _____,	EDISP(1,8) = _____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,	_____,
_____,	_____,	_____,

HYDRO AND ENERGY STORAGE CALCULATIONS

KWHERE = _____,

Conventional hydro scheduling mode (production cost calculations).
0 = All week.
1 = Weekdays only.

EXCHYD = _____,

Option to spill or carry forward excess hydro energy.
-1 = Carry forward from month to month, including into the following year.
0 = Carry forward from month to month but not from year to year.
1 = Spill excess each month.

EXCMAX = _____,

Maximum amount of conventional hydro energy excess, in MWh, to be carried forward. Energy excess over this amount will be spilled.

RELENG(12)

Conventional hydro energy for reliability calculation only.
MWh of energy, by month, which can be used to shave hourly loads which had been modified for non-zero hourly contracts and resorted. If not supplied, program will use production cost energy (ENGYDB) with run-of-river portion derated.

ADJPSH = _____,
_____,
_____,

Adjustment on pumping or charging cost, by energy storage type.
Pumping cost is multiplied by ADJPSH before being compared with generating cost.
Initialized to 1.0.

KEYPSH = _____,
_____,
_____,

Option to evaluate certain pumping/generating periods for energy storage types.
0 = Weekday pump, weekday generate.
Weekend pump, weekday generate.
1 = Weekday pump, weekday generate.
Weekend pump, weekday generate.
Weekend pump, weekend generate.
-1 = Daily cycle only.
Weekday pump, weekday generate.
Weekend pump, weekend generate.

	Default	
KORDER= _____,	1	Order of energy storage dispatch.
_____,	2	
_____,	3	

HYDRO AND ENERGY STORAGE CALCULATIONS (Continued)

GSTART(12,3) Free energy input, MWh, energy storage by month.

GSTART(1,1) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

GSTART(1,2) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

GSTART(1,3) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

RELENG = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

FIRM CONTRACTS, PURCHASES AND SALES

(Maximum of 10 contracts)

IDCTRT(10)	Hollerith identification of contract. 6 characters/contract.
NHCTRT(10)	Number of hours each day the contract will modify the load. NOTE: If NHCTRT=0, contract will modify the loads for reliability calculations only.
KCTRT(10)	Code for application of contract. 0 = All week. 1 = Weekdays only.
DKWYCT(10)	Demand charge, $/kW/yr. (Relative to year in which costs are quoted.) Investment cost calculations.
RATEIC(10)	Demand charge inflation multiplier. Initialized to 1.0.
DMWHCT(10)	Energy charge, $/MWh. (Relative to year in which costs are quoted.) Production costing calculations.
RATEPC(10)	Energy charge inflation multiplier. Initialized to 1.0.
CTRTMW(12,10)	Contract in MW, by month. 12 entries for each contract. Positive entry is a purchase, i.e., a load reducer. Negative entry is a sale, i.e., a load adder.
CTRINC(10)	Difference between 12-month contract and actual MW used or sold (MW). Added to CTRTMW in investment cost calculations.

FIRM CONTRACTS, PURCHASES AND SALES (Continued)

IDCTRT = 60H _____,

NHCTRT = ____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

KCTRT = ____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

DKWYCT = ____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

RATEIC = ____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

DMWHCT = ____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

RATEPC = ____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

CTRINC = ____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

CTRTMW(1,1) = _____, CTRTMW(1,2) = _____, CTRTMW(1,3) = _____, CTRTMW(1,4) = _____,

CTRTMW(1,5) = _____, CTRTMW(1,6) = _____, CTRTMW(1,7) = _____, CTRTMW(1,8) = _____,

CTRTMW(1,9) = _____, CTRTMW(1,10) = _____,

DESIGN CRITERIA

PRGOAL = _____,

Percent reserve goal.
e.g., 25.0 = 25 percent reserve goal.
If not input, program will expand system to meet LOLP.
If input, program will expand system to meet PRGOAL.

KEYPRC = _____,

Option to compute percent reserve as
 0 = (Capacity + contracts - load)/load.
 1 = [(Capacity + other contracts) - (load - contracts at 0 hrs)]/(load - contracts at 0 hrs).
-1 = [Capacity - (load - contracts)]/(load - contracts).

YRINMX = _____,

Risk index, days/year, used in system reliability calculations.
Initialized to 0.1.

HRINMX = _____,

Risk index, hours/year, used in system reliability calculations.
Initialized to 1.0.

KLOLP(1) = _____,

Option to design system to hourly risk.
0 = Design to daily risk.
1 = Design to hourly risk.
Initialized to 0.

KLOLP(2) = _____,

Option to calculate hourly risk if designing to daily risk.
 0 = Do not calculate hourly risk.
 1 = Calculate hourly risk in all passes.
-1 = Calculate hourly risk in optimum pass only.
Initialized to 0.

KLOLP(4) = _____,

Option to schedule hydro and energy storage units when calculating risk.
0 = Use derated values.
1 = Do actual scheduling of units.

NENTRY(24)

Hourly reliability calculation.
Hours to be evaluated.
Initialized to 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24.

NENTRY = _____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,

OPTIMIZATION

FAIL = _____,

Type of expansion.
0 = Automatic, i.e., add units until system reliability index is met.
1 = Manual, i.e., add committed units only.
NOTE: Even if FAIL=1, KOPT list must contain at least one zero entry.

KOPT = _____, Type 1
_____, Type 2
_____, Type 3
_____, Type 4
_____, Type 5
_____, Type 6
_____, Type 7
_____, ES-1
_____, ES-2
_____, ES-3

Code to define types to be evaluated in the optimization.
0 = Evaluate.
1 = Do not evaluate (list is initialized to 1).
NOTE: Program requires at least one zero entry in list.
Program sets KOPT(7)=1 each year.
Check unit availability matrix for years of installation (XSIZES and MANFYR, see page 5-17).

MIX = _____,

Option to mix types of automatic units added in any one year.
0 = Add only one type in one year.
1 = Allow multiple unit types in one year.

NOKOPT = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

Code to define types to be optimized on only in the mix logic.
0 = Evaluate type alone and in the mix logic.
1 = Evaluate only in the mix logic.

MATOR = _____,

Option to select minimum cost expansion based on mature forced and planned outage rates of units added automatically in study year.
0 = Use immature rates in decision passes.
1 = Use mature rates in decision passes.
Initialized to 1.

NLPW = _____,

Number of years over which to levelize fuel costs and O&M costs of all units in the decision passes to select minimum cost expansion.
(If NLPW $\leq$ 1, use actual fuel costs and O&M costs.)
NLPW $\leq$ 30.
Initialized to 10.

MONAUT = _____,

Option to install all automatic units in month other than January.
e.g., MONAUT = 3, Install units in March.
Omit if units are to be installed in January.
CAUTION: Do not install units after month in which peak load occurs.

OPTIMIZATION (Continued)

MYRAUT = _____,

Option relative to installation of mid-year automatic additions.
0 = Original logic.
Install units as designated by MONAUT in decision passes and optimum pass.
1 = Decision passes--Install in January for production and investment calculations. Install in MONAUT for reliability and percent reserve calculations.
Optimum pass--Install in MONAUT for all calculations.
Initialized to 0.

KRMAX = _____,

Maximum number of passes through reliability calculations for each type of unit to be evaluated in the optimization. If exceeded, program will print summary and terminate.
Initialized to 20.

NNMANY = _____,

Unit size guide (nuclear and base fossil only). Add NNMANY units in NNAHED years.

NNAHED = _____,

Unit size guide (nuclear and base fossil only). Add NNMANY units in NNAHED years.

GRMLTI = _____,

Multiplier for choosing size of intermediate units on which to optimize. Size chosen will be closest size to GRMLTI times current year's load growth.
Initialized to 1.0.

GRMLTP = _____,

Multiplier for choosing size of peaking units on which to optimize.
Size chosen will be closest size to GRMLTP times system capacity.
Initialized to 0.01.

NKODE(5) = _____,
or
NSBASE = _____,

Option to alter logic used in choosing size of base load units on which to optimize.
0 = May not choose a size smaller than already used in previous year (default).
1 = May choose optimum size even if smaller than what was used previously.

TRIM LOGIC

PCTRIM = _____,
_____,
_____,
_____,
_____,
_____,

Percent trim code, (p.u. by type).
Option to meet minor MW deficiency by installing trim units instead of unit type being evaluated.
Used only when evaluating thermal units (Types 1-6).
If MW deficiency is less than PCTRIM for the unit type times the size of the unit being evaluated, the program will add trim units.
0 = Do not trim.
X.XX = Use trim logic.
e.g., 25% = 0.25.

NTRIM = _____,

Thermal type to use for percent trim option.
Initialized to Unit Type 3.

NKODE(2) = _____,
or
NATRIM = _____,

Option to alter trim logic.
0 = Default logic.
1 = Do not trim unless at least 1 unit of the type being optimized on has been added.

LOAD FORECAST UNCERTAINTY

UNCLM(10)

P.U. multipliers on peak load forecast read from load model.
Omit if load forecast uncertainty option not used.

UNCLL(10)

Likelihood of load level occurring (i.e., weighting multipliers for load variations).
Sum of entries must equal 1.0.
Omit if load forecast uncertainty option not used.

NOTE: Load forecast uncertainty used only in reliability calculations.

UNCLM = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

UNCLL = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

ECONOMIC OVERBUILDING

NYROVR(30)

Option to perform economic overbuilding for each year of study.
0 = Do not overbuild in given year.
1 = Overbuild in given year, if economical.
Initialized to 0.

KOPOVR(10)

Code to tag thermal or energy storage type as candidate for overbuilding.
0 = Overbuild with type, if economical.
1 = Do not overbuild with type.
Initialized to 1.
Associated input: KOPT and NOKOPT.

PROVER = _____,

Maximum installed percent reserve to expand the system to, if economical.
After enough units have been added automatically to meet desired risk index or percent reserve goal, program will continue adding units that are candidates for overbuilding as long as it is economical to do so, or until maximum installed percent goal is reached.
e.g., 50.0 = 50 percent maximum percent goal.
Initialized to 0.

LMBSES = _____,

If maximum installed percent reserve has not been reached when overbuilding with each type above, option to mix best base load type with best energy storage type before entering MIX logic.
0 = Do not mix best base load with best energy storage.
1 = Mix best base load with best energy storage prior to entering MIX logic.
Initialized to 0.

NYROVR = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

NYROVR(16) = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____;

KOPOVR = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

0025

RETIREMENT OF AUTOMATIC UNITS

Option to retire units added automatically by the program.

In the Data Preparation Program, NYRET defined the number of years before retirement of existing units or committed units. In Generation Planning, IYRAUT defines the number of years before retirement of units added automatically:

IYRAUT(10) — Number of years before units added automatically are retired, by type.
Initialized to 100.

IVCSUB(10) — Option to subtract investment cost of units added automatically, upon their retirement, by type.
0 = Do not subtract.
1 = Subtract.
Initialized to 0.

Refer to NSICMT, i.e, NKODE(4) for retirement of units committed manually.

MONRET = _____, — Month of retirement for units added automatically. e.g., MONRET=3, retire unit at beginning of March. Omit if units are to be retired at beginning of January.

IYRAUT = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

IVCSUB = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

PROGRAM OPTIONS

KEYENV = _____,

Option to perform fuel consumption environmental discharge calculations.
0 = Omit.
1 = Calculate fuel consumption and emissions (OGP-6A).
-1 = Calculate fuel consumption only (OGP-6).

KODE(7) = _____,
or
KCALCL = _____,

Option to bypass probability calculations.
0 = Compute probability calculations.
1 = Bypass probability calculations.
Initialized to 0.
If KODE(7)=1, must input FAIL=1, or plan to meet a percent reserve goal.

KOSTPC = _____,

Option to bypass production cost calculations.
0 = Bypass production cost calculations.
1 = Compute production cost calculations.
Initialized to 1.

IFSP = _____,

Option to develop data to be used by the Financial Simulation Program. Data will be stored on File 11, which must be saved permanently on tape or permanent file by the use of an appropriate control card.
0 = Do not develop file.
1 = Develop file without printing.
-1 = Develop file and print on Report 06.

TYCST = _____,

Annual carrying charges for generation capacity installed prior to start of study (in million $).

NKODE(1) = _____,
or
NDVOM = _____,

Option to redefine variable O&M.
0 = $/fired hr/MW.
1 = $/MWh.

IYREAD = _____,

Option to read annual data.
0 = No annual data to be read.
N = Year in which next set of data will be read (4 digits).

STEP = _____,

Option to allow user to input step size of probability table instead of allowing program to determine step size based on annual peak load. (Refer to page 5-52.)

PROGRAM OPTIONS (Continued)

NKODE(4)= _____,
or
NSICMT = _____,

Option to alter investment costing logic.
0 = Default logic.
1 = When a thermal unit is retired from the system, subtract its investment cost from the total investment cost. (Applies only to those committed units added during the study. Refer to IVCSUB for retirement of units added automatically.)

PRBMIN = _____,

Probability table cutoff point.
Initialized to 1.0E-15.

NFIRST = _____,

1 = Each year's costs occur in December.
0 = Each year's costs occur in January.
Initialized to 1.

NKODE(7) = _____,
or
NALLOC = _____,

Option to alter allocation of units among companies.
0 = Siting allowed in all companies (default).
1 = Do not add units to companies which have load but no capacity.

UPFUEL(20)

Switch to tell program how to assign fuel costs to units, by fuel type.
0 = Use TEMPC data, indexed on master list.
User may override TEMPC at general data level or annually.
1 = Use FUCOST data, indexed on fuel type.
User may override FUCOST at general data level or annually.
Initialized to zero.
NOTE: General data--costs are input relative to year in which costs are quoted.
Annual data--must deflate by current year fuel inflation multiplier, since program reads data first and then multiplies by appropriate fuel inflation multiplier.

UPFUEL = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

OUTPUT OPTIONS

KODE2(30)

Option to print annual production cost output, by year.
0 = Omit.
1 = Print annual production cost output for all decision passes.
-1 = Print annual production cost output for optimum pass only.

KODE3(30)

Option to print monthly production cost output by year.
0 = Omit.
1 = Print monthly output in addition to annual output.
Associated input: KODE2 and MPRINT.

MPRINT(12)

Option to print production cost output for selected months.
Must input KODE3 data to initiate monthly print.
0 = Do not print monthly output.
1 = Print monthly output.
List initialized to 1.

KPRENV(4)

Option to print fuel consumption report or environmental emission report (OGP-6A only) by the following categories: Unit, Plant, Region, or Fuel type.
0 = Print.
1 = Omit.
Associated input: KODE2 and KEYENV.

KODE2 = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

KODE3 = _____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,
_____, _____,

MPRINT = _____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,
_____,

KPRENV = _____,
_____,
_____,
_____,

OUTPUT OPTIONS (Continued)

NKODE(10) = _____,
or
NWUSER = _____,

Option to save production cost and reliability results for subsequent use by user-written program.
Will write output to File 12. This file must also be saved on tape or permanent file by the use of an appropriate control card.
0 = Do not save production cost results.
1 = Save results.
NOTE: Associated input KODE2 and KODE3. A production costing pass will be saved if and only if it is printed.

LSPARE(1) = _____,
or
LPLOLP = _____,

Option to print monthly LOLP on Reports 06 and 07.
0 = Omit.
1 = Print on Reports 06 and 07.

KODE(6)= _____,
or
KPRSUM = _____,

Option to print Summary 1 output.
(Detailed summary of decision passes in the optimization.)
0 = Omit.
1 = Print.
Initialized to 1.

KPCUMT = _____,

Option to print components of cumulative present worth of annual charges in Summary 1.
0 = Omit.
1 = Print cumulative fuel, O&M and investment costs in Summary 1.
Initialized to 0.

KPSUM2 = _____,

Option to print Summary 2.
(Summary of unit additions by unit type and company.)
0 = Do not print.
1 = Print.
Initialized to 0.

M3D = _____,

Option to receive Summary 3 output, program error messages and end of calculations message via terminal.
(Summary of unit additions, annual costs, and reliability.)
0 = Printed only as part of bulk output.
7 = Write output on Report 07 and receive output via terminal. Will also be printed on hard copy.
Initialized to 7.
NOTE: M3D input to Data Preparation Program does not carry through to Generation Planning Program. Each is an independent input item.

KEYSUM = _____,

Option to print summary of yearly cost and present worth values.
1 = Omit.
0 = Print one-page summary following Summary 2 and two additional summaries on Summary 3.

OUTPUT OPTIONS (Continued)

KPRSMY = _____,
or
KSPARE(4) = _____,

Referring to KEYSUM input, option to print summary on Report 07 or 08.
0 = Do not print on Report 07 or 08.
7 = Print on Report 07.
8 = Print on Report 08.
Initialized to KPRSMY=0.

M4D = _____,

Option to receive Summary 4 output.
(Summary of 10 best decision passes each year.)
0 = Printed only as part of bulk output.
8 = Write output on Report 08 and receive output via terminal.
Will also be printed on hard copy.

KPSUM4 = _____,

Option to print an additional line of output in Summary 4.
Reprint annual component costs of minimum cost expansion in XXX.XXX millions of dollars.
0 = Omit.
1 = Print additional line of component cost output.

KPRES = _____,
or
KODE(9) = _____,

Option to print energy storage calculations output.
0 = Do not print.
1 = Print hourly loads for each month, before and after energy storage modification.
(Not recommended to print if run is an automatic expansion type run because output will be printed every time energy storage calculation module is accessed.)
Initialized to KPRES=0.

EEPRNT = _____,

MWh cutoff for printing "EMERGENCY TIE ASSISTANCE" message.
Refers to "SUMMARY OF VIOLATIONS" output, which is printed following "CASE TOTALS" output on hard copy output.
Initialized to 5.0.
Also refer to KPVIOL.

KPVIOL = _____,

Number of "SPINNING RESERVE" and "EMERGENCY ENERGY" violations to print.
0 = Do not print.
N = Print N number of violations.
Initialized to KPVIOL=250.

Ending $

End of Data.

(REPLACE COMMA FOLLOWING LAST PIECE OF DATA WITH $)

0025

OVERRIDE DATA

The following variables were input to the Data Preparation Program or created by Data Preparation and are stored on a transfer file, which is read in the Generation Planning Program. They may be overridden in the general data or annually.

ID1	Hollerith identification, 60 characters.
ID2	Hollerith identification, 60 characters.
NNMANY	Unit size goal, number of units.
NNAHED	Unit size goal, span of years.
NTOTAL	Number of years to study. Must be < number of years studied in Data Preparation Program (general data override only).
NYPWTH	Year of reference for present worth.
IPATRN(12,25)	Manual maintenance patterns.
FIXCHG(25,6)	Annual fixed charge rate, 6 thermal types for each company. (Input 0.125 for 12.5%.)
HYDFCR(25,4)	Annual fixed charge rate, conventional hydro and energy storage types, for each company. (Input 0.125 for 12.5%.)
OMHYD(4)	O&M cost, fixed. Conventional hydro and energy storage. (See note in Cost Data, page 5-91.)
OMVHYD(4)	O&M cost, variable, $/MWh. Conventional hydro and energy storage. (See note in Cost Data, page 5-91.)
CEFFES(12,3)	Cycle efficiency of energy storage, by month. Overrides Data Preparation input.
ESIZEG(3)	Size of MW block of generator to add automatically, energy storage types.
ESIZEP(3)	Size of MW block of pumping or charging rating to add automatically, energy storage types.
ESIZES(3)	Size of MWh blocks of storage capacity to add automatically, energy storage types.

OVERRIDE DATA (Continued)

UNIT CHARACTERISTICS

The following variables may override the data describing the individual units. Index k in each list refers to the Unit ID assigned to each unit by the Data Preparation Program.

CAP(k)	Maximum rating, MW. List used in probability calculations. Review <u>all</u> associated input, i.e., POW2, FIN1, etc.
FIN1(k)	Fuel input, MBtu/hr at minimum production cost rating.
FIN2(k)	Fuel input, MBtu/hr at maximum production cost rating.
IFTYPE(k)	Fuel type. Review <u>all</u> associated input, i.e., TEMPC, BTUNIT, etc.
FOR(k)	Mature forced outage rate, (p.u.).
POR(k)	Mature planned outage rate, (p.u.).
POW1(k)	Output at minimum rating, (MW). List used in production cost calculations.
POW2(k)	Output at maximum rating, (MW). List used in production cost calculations. Review CAP(k).
KIND(k)	Unit type. Review <u>all</u> associated input.
MSTRUN(k)	KCYCLE Rule.
MMPAT(k)	Manual maintenance pattern.
BTUNIT(k)	Heating value, Btu/unit fuel.
IPLANT(k)	Plant index assigned to unit k. 1 $\leq$ Plant index $\leq$ 100.

PLANT CHARACTERISTICS

IREGN(I)*	Region index assigned to plant I. 1 $\leq$ Region index $\leq$ 25.

* Index I refers to plant index.

OVERRIDE DATA (Continued)

COST DATA

NOTE: If cost data is input at the general data level, the data must be relative to the year in which costs are quoted. If the data is read in annual data, it must be deflated by the amount of the inflation multiplier, because at the beginning of each year, the program reads in all costs and then modifies them by the corresponding inflation multiplier. Index k in each list refers to the Unit ID assigned to each unit by the Data Preparation Program.

CAPCOS(k)	Plant cost, $/kW.
FUCOST(I)	Fuel cost, $/MBtu, input by fuel type. Index I points to fuel type. (See UPFUEL on page 5-85.) NOTE: Dollars, not cents.
FUIC(1,L)	Nuclear fuel inventory cost, $/yr/kW. L is index which points to nuclear identification. Input one entry per unit, $/yr/kW associated with first step of inventory cost.
IFCPAT(k)	Fuel cost inflation pattern.
OM(k)	Fixed O&M costs, $/kW/yr.
OMV(k)	Variable O&M costs, $/MW/fired hour or $/MWh.
TEMPC(k)	Fuel cost, $/MBtu, input by unit. (See UPFUEL on page 5-85.) NOTE: Dollars, not cents.

OVERRIDE DATA (Continued)

The following variables were input to the Data Preparation Program for OGP-6A or created by Data Preparation and are stored on a transfer file, which is read in the Generation Planning Program. They may be overridden in the general data or annually.

LIMIT	Option to use fuel and/or energy limits.
LIMCF	Option to allow carry-forward.
FLIMIT(20)	Fuel consumption limit, by fuel type.
ELIMIT(6)	Energy limit factor, by thermal type.
PUELIM(12,6)	Monthly p.u. multiplier for energy limits.
PUFLIM(12,20)	Monthly p.u. multiplier for fuel limits.

The following may override the data describing the individual units. Index k in each list refers to the Unit ID assigned to each unit by the Data Preparation Program.

EULIM(k)	Energy limits. P.U. multipliers associated with unit still apply.
COEFCO(k,1)	Carbon monoxide coefficient, lbs/hr.
COEFCO(k,2)	Carbon monoxide coefficient, lbs/MWh.
COEFCO(k,3)	Carbon monoxide coefficient, scalar.
COEFNO(k,1)	Nitrogen oxide coefficient, lbs/hr.
COEFNO(k,2)	Nitrogen oxide coefficient, lbs/MWh.
COEFNO(k,3)	Nitrogen oxide coefficient, scalar.
COEFPT(k,1)	Particulate coefficient, lbs/hr.
COEFPT(k,2)	Particulate coefficient, lbs/MWh.
COEFPT(k,3)	Particulate coefficient, scalar.
COEFWC(k,1)	Water consumption coefficient, gals/hr.
COEFWC(k,2)	Water consumption coefficient, gals/MWh.
PRECEF(k)	Precipitator efficiency, p.u.
PUHREJ(k)	Atmospheric waste heat rejection allocation, p.u.
PUSORM(k)	Sulfur removal efficiency, p.u.
SOCONT(k)	Sulfur content, lbs/unit fuel.

OGP OUTPUT
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```
04/08/83 1872XU OGP-6A                                                    ##
OGP-6A USERS MANUAL EXAMPLE      FILE UM6A                                ##
BASE CASE                                                                 ##

          **************************************************
          **************************************************
          **                                              **
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          **                                              **
          **************************************************
          **************************************************

                  MAILING LABEL--SEE SECTION 2 FOR INSTRUCTIONS.

**********************************************************************************************
**********************************************************************************************
**                                                                                          **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**                  MAIL OUTPUT TO                                                          **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**                  INPUT UP TO AND INCLUDING 6 LINES OF                                    **
**                                                                                          **
**                  USER NAME AND MAILING ADDRESS,  USER ID                                 **
**                                                                                          **
**                                                                                          **
**                  DO NOT USE THE CHARACTER COLON                                          **
**                                                                                          **
**                                                                                          **
**                                                                                          **
**********************************************************************************************
**********************************************************************************************

HONEYWELL PAGE PRINTING SYSTEM- P1168-02
```

GENERAL ELECTRIC COMPANY, EUSED, DATA PREP TO GENERATION PLANNING PROGRAM OGP-6A V6.20 PAGE 1

OGP-6A USERS MANUAL EXAMPLE FILE UM6A
BASE CASE

04/08/83 11.741
JOB NUMBER 1872XU

LISTING OF INPUT CARDS

```
1
2       INPUT UP TO AND INCLUDING 6 LINES OF                                    00000220
3       USER NAME AND MAILING ADDRESS,  USER ID                                 00000230
4                                                                               00000240
5       DO NOT USE THE CHARACTER COLON                                          00000250
6                                                                               00000260
7   $INPUT                                                                      00000270
8   ID1='OGP-6A USERS MANUAL EXAMPLE      FILE UM6A',                           00000280
9   ID2='BASE CASE ',                                                           00000290
10  NSTART=1985,                                                                00000300
11  NTOTAL=5,                                                                   00000310
12  NYCOST=1982,                                                                00000320
13  NYPWTH=1982,                                                                00000330
14  IDTYPE='NUCLEAR     FOSSIL-OIL  GAS TURBINE C-CYCLE     ',                  00000340
15         'F-COAL-HS   F-COAL-LS   CONV. HYDRO PUMPED HYDRO',                  00000350
16         'COMPR. AIR  ENERGY STO-3',                                          00000360
17  IDTONE='NUCL. F-OIL G.T.  CCYCLEHSCOALLSCOALHYDRO PSH   CAES  ES-3  ',      00000370
18  KTTYPE=-1,0,2,1,0,0,                                                        00000380
19  CAPMIN=0.1,                                                                 00000390
20  GTIMES=0,                                                                   00000400
21  NNMANY=1,                                                                   00000410
22  NNAMED=1,                                                                   00000420
23  CEFFES(1,1)=12*0.7,                                                         00000430
24  CEFFES(1,2)=12*1.33,                                                        00000440
25  DERNYD=2*0.99,0.925,0.99,                                                   00000450
26  HRES=0,4100,                                                                00000460
27  XSIZES(1,1)=250,                                                            00000470
28  XSIZES(1,2)=80,150,                                                         00000480
29  XSIZES(1,3)=50,75,150,                                                      00000490
30  XSIZES(1,4)=85,115,                                                         00000500
31  XSIZES(1,5)=200,400,600,                                                    00000510
32  XSIZES(1,6)=200,400,600,                                                    00000520
33  MANFYR(1,1)=1990,                                                           00000530
34  MANFYR(1,2)=2*1985,                                                         00000540
35  MANFYR(1,3)=3*1985,                                                         00000550
36  MANFYR(1,4)=2*1985,                                                         00000560
37  MANFYR(1,5)=2*1985,1994,                                                    00000570
38  MANFYR(1,6)=2*1985,1994,                                                    00000580
39  PLCMW=2*1000,2*100,2*1000,                                                  00000590
40  PLCDKW=1000, 685, 200, 390, 925, 900,                                       00000600
41  PLCDF=.16, .09, 2*.0001, 2*.09,                                             00000610
42  PATPC(1,1)=1.07,1.05,                                                       00000620
43  PATPC(1,2)=1.07,1.05,                                                       00000630
44  PATPC(1,3)=1.07,1.05,                                                       00000640
45  PATPC(1,4)=1.07,1.05,                                                       00000650
46  PATPC(1,5)=1.07,1.05,                                                       00000660
47  PATPC(1,6)=1.07,1.05,                                                       00000670
48  IYRPC(1,1)=1982,1985,                                                       00000680
49  IYRPC(1,2)=1982,1985,                                                       00000690
50  IYRPC(1,3)=1982,1985,                                                       00000700
51  IYRPC(1,4)=1982,1985,                                                       00000710
52  IYRPC(1,5)=1982,1985,                                                       00000720
53  IYRPC(1,6)=1982,1985,                                                       00000730
54  PLCNYD=700,720,670,                                                         00000740
55  PATHPC(1,1)=1.07,1.05,                                                      00000750
                                                                                00000760
```

GENERAL DATA--
ORDER OF DATA WITHIN
SET IS ARBITRARY

HONEYWELL PAGE PRINTING SYSTEM- P118B-02

```
56   PATHPC(1,2)=1.07,1.05,                                          00000770
57   PATHPC(1,3)=1.07,1.05,                                          00000780
58   IYRHPC(1,1)=1982,1985,                                          00000790
59   IYRHPC(1,2)=1982,1985,                                          00000800
60   IYRHPC(1,3)=1982,1985,                                          00000810
61   FIXCHG(1,1)=16,                                                 00000820
62   FIXCHG(1,2)=16,                                                 00000830
63   FIXCHG(1,3)=17,                                                 00000840
64   FIXCHG(1,4)=16,                                                 00000850
65   FIXCHG(1,5)=16,                                                 00000860
66   FIXCHG(1,6)=16,                                                 00000870
67   HYDFCR(1,1)=16,                                                 00000880
68   HYDFCR(1,2)=16,                                                 00000890
69   HYDFCR(1,3)=16,                                                 00000900
70   FCOPT=0,                                                        00000910
71   NMFUEL='U308  LB.   OIL 6 BBL   OIL 2 BBL   HSCOALTON   LSCOALTON  ',00000920
72   FUCOST=57,700,830,150,185,                                      00000930
73   IPATFC=1,2,2,1,1,                                               00000940
74   NUCBRK=5,                                                       00000950
75   NUCSTP=1,                                                       00000960
76   FUBCPU=1.06, 1.0, .97, 2*1.0,                                   00000970
77   HVTAB=12.2+8, 6+6, 5.9+6, 2.4+7, 1.76+7,                        00000980
78   FUICST=5.85,                                                    00000990
79   IFTAB=1,2,3,3,4,5,                                              00001000
80   KFTES=0,3,0,                                                    00001010
81   PATFC(1,1)=1.06,1.05,                                           00001020
82   PATFC(1,2)=1.065,1.055,                                         00001030
83   IYRFC(1,1)=1982,1985,                                           00001040
84   IYRFC(1,2)=1982,1985,                                           00001050
85   OMMW=1000,500,100,100,500,500,                                  00001060
86   OMDKW=29,1.7,.3,.3,16,15,                                       00001070
87   OMDF=.2,.15,2*.0001,2*.15,                                      00001080
88   OMDIR=4*0,4,3,                                                  00001090
89   PATOM(1,1)=1.07,1.05,                                           00001100
90   PATOM(1,2)=1.07,1.05,                                           00001110
91   PATOM(1,3)=1.07,1.05,                                           00001120
92   PATOM(1,4)=1.07,1.05,                                           00001130
93   PATOM(1,5)=1.07,1.05,                                           00001140
94   PATOM(1,6)=1.07,1.05,                                           00001150
95   IYROM(1,1)=1982,1985,                                           00001160
96   IYROM(1,2)=1982,1985,                                           00001170
97   IYROM(1,3)=1982,1985,                                           00001180
98   IYROM(1,4)=1982,1985,                                           00001190
99   IYROM(1,5)=1982,1985,                                           00001200
100  IYROM(1,6)=1982,1985,                                           00001210
101  OMHYD=1,1,4,1,                                                  00001220
102  PATHOM(1,1)=1.07,1.05,                                          00001230
103  PATHOM(1,2)=1.07,1.05,                                          00001240
104  PATHOM(1,3)=1.07,1.05,                                          00001250
105  IYRHOM(1,1)=1982,1985,                                          00001260
106  IYRHOM(1,2)=1982,1985,                                          00001270
107  IYRHOM(1,3)=1982,1985,                                          00001280
108  NYRET=6*40,2*1000,30,1000,                                      00001290
109  FORMW=100,500,800,  100,500,800,  50,100,200,                  00001300
110        200,400,600,  100,500,800,  100,500,800,                  00001310
111  FORATE=.06,.08,.09,  .03,.05,.10,  .07,.06,.05,                 00001320
112        3*.05,  .11,.12,.12,  .07,.09,.10,                        00001330
113  PORMW=100,500,800,  100,500,800,  50,100,200,                   00001340
114        200,400,600,  100,500,800,  100,500,800,                  00001350
115  PORATE=3*.176,  .05,.11,.15,  3*.04,                            00001360
116        3*.11,  .05,.12,.176,  .05,.12,.176,                      00001370
117  IPATRN(1,1)=2*0,  2*1,  8*0,                                    00001380
118  IPATRN(1,2)=8*0,  2*1,  2*0,                                    00001390
119  XHIRDB=10300,9800,12000,8070,9550,9400,                         00001400
```

GENERAL DATA

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

```
120   XPOW1=.25,.20,.05,.20,.25,.25,                                    00001410
121   XFIN1=.3,.25,.26,.25,.28,.28,                                     00001420
122   KEYENV=1,                                                         00001430
123   HREJ=1,.22,1,.45,.22,.22,                                         00001440
124   SCRM=0,.9,4*0,                                                    00001450
125   PREFF=4*0, .85,.93,                                               00001460
126   SOTAB=0,70,20,3.78,1.26,                                          00001470
127   PCSULF=0,3.5,1,1.5,.5,                                            00001480
128   POOLMW(11)=7018, 7229, 7445, 7669, 7900,                          00001490
129   LIMIT=1,                                                          00001500
130   LIMCF=1,                                                          00001510
131   ELIMIT(3)=0.2,                                                    00001520
132   IPNAME=3GHCOASTAL      CENTRAL     HILLSIDE    ,                  00001530
133   IRNAME=24HNORTH        SOUTH       ,                             00001540
134   IREGN=1,2,2,                                                      00001550
135   KPLANT=1,2,3,2,3,3,                                               00001560
136   M3D=7,                                                            00001570
137   MANUAL=1,                                                         00001580
138   KPRINT=1,                                                         00001590
139   LPRINT=1,                                                         00001600
140   NREAD=1$                                                          00001610
141   $INPUT                                                            00001620
142   CAPDB=2*830, CAPDB(5)=500,                                        00001630
143   MPATDB=1,2,                                                       00001640
144   MRDB(3)=-1, MRDB(15)=-1,                                          00001650
145   KPLDB=1,1,1,3,3,1,1,2,2,2,2,3,3,3,1,                              00001660
146   NREAD=0$                                                          00001670
147   $INPUT                                                            00001680
148   IMAX=3,                                                           00001690
149   NAMEDB='HARBOR-GT 03CONV. HYD 03COMPRESS AIR',                    00001700
150   INSTDB=84,85,88,                                                  00001710
151   KINDB=3,7,9,                                                      00001720
152   KCODB=3*1,                                                        00001730
153   CAPDB=100,                                                        00001740
154   GMINDB(1,2)=12*10,                                                00001750
155   GMAXDB(1,2)=12*100,                                               00001760
156   ENGYDB(1,2)=12*60,                                                00001770
157   GENES(1,3)=12*220,                                                00001780
158   PUMPES(1,3)=12*250,                                               00001790
159   PONDES(1,3)=12*2200,                                              00001800
160   KPLDB=1,                                                          00001810
161   KMORE=0$                                                          00001820
162   $INPUT                                                            00001830
163   IMAX=1,                                                           00001840
164   NAMEDB='PURCHASE     ',                                           00001850
165   INSTDB=85,                                                        00001860
166   KRETDB=1986,                                                      00001870
167   KINDB=6,  KCODB=1,  CAPDB=100,                                    00001880
168   FORDB=-1, PORDB=-1, CMBTU=200, HRDB=10000,                        00001890
169   KPLDB=3,                                                          00001900
170   KMORE=0$                                                          00001910
171   $INPUT                                                            00001920
172   IMAX=1,                                                           00001930
173   NAMEDB='BAY VIEW  02',                                            00001940
174   INSTDB=87, MINTDB=6,                                              00001950
175   KINDB=6,  KCODB=1,  CAPDB=50,                                     00001960
176   KPLDB=1,                                                          00001970
177   KMORE=1$                                                          00001980
```

OVERRIDE DATA

MANUAL ADDITIONS

HONEYWELL PAGE PRINTING SYSTEM-- P1185-02

EDISON

COMPANY INDEX	COMPANY NAME
1	EDISON

POOL AND COMPANY NAMES--
READ FROM LOAD MODEL

TYPE OF GENERATION	CODE
NUCLEAR	1
FOSSIL-OIL	2
GAS TURBINE	3
C-CYCLE	4
F-COAL-HS	5
F-COAL-LS	6
CONV. HYDRO	7
PUMPED HYDRO	8
COMPR. AIR	9
ENERGY STO-3	10

THERMAL, HYDRO, AND ENERGY STORAGE TYPES OF UNITS IN THIS RUN.

STANDARD TABLES FOR ALL TYPES SHOULD BE PROVIDED.

THERMAL TYPE	TYPE	FUEL TYPE	KIND OF GENERATION
NUCLEAR	1	1	NUCLEAR
FOSSIL-OIL	2	2	BASE LOAD FOSSIL
GAS TURBINE	3	3	PEAKING
C-CYCLE	4	3	INTERMEDIATE
F-COAL-HS	5	4	BASE LOAD FOSSIL
F-COAL-LS	6	5	BASE LOAD FOSSIL
CONV. HYDRO	7		HYDRO
PUMPED HYDRO	8	0	STORAGE
COMPR. AIR	9	3	STORAGE
ENERGY STO-3	10	0	STORAGE

FUEL TYPES ASSIGNED TO UNIT TYPES BY PROGRAM. INDIVIDUAL UNITS MAY HAVE UNIQUE FUEL TYPES. (20 FUEL TYPES MAXIMUM).

KIND OF GENERATION USED IN DETERMINING SIZE OF UNITS ON WHICH TO OPTIMIZE.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY, EUSED, DATA PREP TO GENERATION PLANNING PROGRAM OGP-6A V6.20 PAGE 3

OGP-6A USERS MANUAL EXAMPLE FILE UM6A 04/08/83 11.741
BASE CASE JOB NUMBER 1872XU

ID	STATION NAME	TYPE	CO ID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	GENERATION MODEL HT RATE BTU/KWH (MAX) (MIN)	RATING MW/P.U. (CAP) (POW2) (POW1)	O + M (FIXED) (VARIB)	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYP FUEL	1982 COST C/ MBTU	NUCL $/KW/ YEAR	LIMITS ATMO (ENGY) (FUEL)	HEAT REJ	SO2 REM.	PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
1	SEASHORE	01	1	1	1970	0	2010	0	0.	0. 0. 0.	830.0 0. 0.	0. 0.	0. 0.150	0 0	0. 0. 0. 0. 0.	0. 0. 0. 0.	0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
2	SEASHORE	02	1	1	1978	0	2018	0	0.	0. 0. 0.	830.0 0. 0.	0. 0.	0. 0.	0 0	0. 0. 0. 0. 0.	0. 0. 0. 0.	0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
3	HARBOR	01	2	1	1948	0	1988	0	0.	12000. 0. 0.	135.0 0. 0.	0. 0.	0. 0.	0 0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
4	LINCOLN	01	2	1	1950	0	1990	0	0.	0. 0. 0.	250.0 0. 0.	0. 0.	0. 0.	0 0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
5	STATESIDE	01	2	1	1975	0	20.5	0	0.	0. 0. 0.	500.0 0. 0.	0. 0.	0. 0.	0 0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
6	HARBOR-GT	01	3	1	1	1960	0	2000	0	0.	0. 0. 0.	50.0 0. 0.	0. 0.	0. 0.	0 0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
7	HARBOR-GT	02	3	1	1	1965	0	2005	0	0.	0. 0. 0.	100.0 0. 0.	0. 0.	0. 0.	0 0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
8	RIVERSIDE	01	3	1	2	1975	0	2015	0	0.	0. 0. 0.	100.0 0. 0.	0. 0.	0. 0	0 0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.

A LISTING OF ALL UNITS RETRIEVED FROM GENERATION MODEL, FOLLOWED BY ALL UNITS ADDED MANUALLY. OUTPUT SHOWN INCLUDES OVERRIDE DATA.

OPTIONAL OUTPUT (GMOUT).

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY, EUSED, DATA PREP TO GENERATION PLANNING PROGRAM OGP-6A V6.20 PAGE 4

OGP-6A USERS MANUAL EXAMPLE FILE UM6A 04/08/83 11.741
BASE CASE JOB NUMBER 1872XU

GENERATION MODEL

ID	STATION NAME	TYPE	CO ID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	HT RATE BTU/KWH (MAX) (MIN)	RATING MW/P.U. (CAP) (POW2) (POW1)	O + M (FIXED) (VARIB)	OUTAGE RATE (POR) (FOR)	**** FUEL **** TYPE	INI FUEL	1982 COST C/MBTU	1982 NUCL $/KW/YEAR	LIMITS (ENGY) (FUEL)	ATMO HEAT REJ	ATMO SO2 REM.	ATMO PREC EFF	**COEFFICIENTS** CARBON MONOXIDE NITROGEN OXIDE PARTICULATE WATER CONSUM
9	RIVERSIDE 02	3	1	2	1982	0	2022	0	0.	0. 0. 0.	150.0 0. 0.	0. 0. 0.	0. 0. 0.	0	0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
10	NORTH SIDE01	4	1	2	1956	0	1996	0	0.	0. 0. 0.	300.0 0. 0.	0. 0. 0.	0. 0. 0.	0	0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
11	BLUE LAKE 01	4	1	2	1967	0	2007	0	0.	0. 0. 0.	400.0 0. 0.	0. 0. 0.	0. 0. 0.	0	0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
12	MIDLINE 01	5	1	3	1952	0	1992	0	0.	0. 0. 0.	300.0 0. 0.	0. 0. 0.	0. 0. 0.	0	0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
13	MIDLINE 02	5	1	3	1973	0	2013	0	0.	0. 0. 0.	400.0 0. 0.	0. 0. 0.	0. 0. 0.	0	0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
14	FRONTIER 01	6	1	3	1958	0	1998	0	0.	0. 0. 0.	170.0 0. 0.	0. 0. 0.	0. 0. 0.	0	0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.
15	BAY VIEW 01	6	1	1	1980	0	2020	0	0.	0. 0. 0.	550.0 0. 0.	0. 0. 0.	0. 0. 0.	0	0	0.		0. 0.	0.	0.	0.	0. 0. 0. 0. 0.

** END OF RECORD 1 ** (GENERATION MODEL TAPE)

1	CONV.HYD	01	7	1	0	1950	0	2950	0	0.												
	MONTHLY MIN. =										30.	30.	30.	40.	40.	40.	40.	40.	40.	20.	20.	20.
	MONTHLY MAX. =										50.	50.	50.	60.	60.	60.	60.	60.	60.	50.	50.	50.
	MONTHLY ENERGY =										32000.	32000.	32000.	38000.	38000.	38000.	38000.	38000.	38000.	28000.	28000.	28000.

HONEYWELL PAGE PRINTING SYSTEM- P1165-02

ID	STATION NAME	TYPE	CO ID	PLANT	INSTL YEAR	INSTL MO	RETIRE YEAR	RETIRE MO	PCT OWN	GENERATION MODEL: HT RATE BTU/KWH (MAX) / (MIN)	RATING MW/P.U. (CAP) / (POW2) / (POW1)	Ø + M (FIXED) / (VARIB)	OUTAGE RATE (POR) / (FOR)	**** FUEL **** TYPE	FUEL	1982 COST MBTU	NUCL $/KW/YEAR	LIMITS (ENGY) (FUEL)	ATMO HEAT REJ	ATMO SO2 REM.	PREC EFF	**COEFFICIENTS** CARBON MONOXIDE / NITROGEN OXIDE / PARTICULATE / WATER CONSUM
2	CONV.HYD 02	7	1	0	1965	0	2965	0	0.													
	MONTHLY MIN.	=			10.		10.			10.	10.	10.	10.			10.	10.	10.	10.		10.	10.
	MONTHLY MAX.	=			100.		100.			100.	100.	100.	100.			100.	100.	100.	100.		100.	100.
	MONTHLY ENERGY	=			60000.		60000.			60000.	60000.	60000.	60000.			60000.	60000.	60000.	60000.		60000.	60000.
3	OTTER PSH	8	1	0	1978	0	2978	0	0.													
	MONTHLY GEN.	=			300.		300.			300.	300.	300.	300.			300.	300.	300.	300.		300.	300.
	MONTHLY PUMP	=			320.		320.			320.	320.	320.	320.			320.	320.	320.	320.		320.	320.
	MONTHLY ENERGY	=			2400.		2400.			2400.	2400.	2400.	2400.			2400.	2400.	2400.	2400.		2400.	2400.
** END OF RECORD 2 ** (GENERATION MODEL TAPE)																						
1	HARBOR-GT 03	3	1	1	1984	0	2024	0	0.	0.	100.0	0.	0.	0	0	0.		0.	0.	0.	0.	0.
										0.	0.	0.	0.					0.			0.	0.
										0.	0.										0.	0.
																					0.	0.
2	CONV. HYD 03	7	1	0	1985	0	2985	0	0.													
	MONTHLY MIN.	=			10.		10.			10.	10.	10.	10.			10.	10.	10.	10.		10.	10.
	MONTHLY MAX.	=			100.		100.			100.	100.	100.	100.			100.	100.	100.	100.		100.	100.
	MONTHLY ENERGY	=			60000.		60000.			60000.	60000.	60000.	60000.			60000.	60000.	60000.	60000.		60000.	60000.
3	COMPRESS AIR	9	1	0	1988	0	2018	0	0.													
	MONTHLY GEN.	=			220.		220.			220.	220.	220.	220.			220.	220.	220.	220.		220.	220.
	MONTHLY PUMP	=			250.		250.			250.	250.	250.	250.			250.	250.	250.	250.		250.	250.
	MONTHLY ENERGY	=			2200.		2200.			2200.	2200.	2200.	2200.			2200.	2200.	2200.	2200.		2200.	2200.
** END OF RECORD 3 ** (MANUAL INPUT)																						
1	PURCHASE	6	1	3	1985	0	1986	0	0.	10000.	100.0	0.	-1.000	0	0	200.		0.	0.	0.	0.	0.
										0.	0.	0.	-1.000					0.			0.	0.
										0.	0.										0.	0.
																					0.	0.
** END OF RECORD 4 ** (MANUAL INPUT)																						
1	BAY VIEW 02	6	1	1	1987	6	2027	0	0.	0.	50.0	0.	0.	0	0	0.		0.	0.	0.	0.	0.
										0.	0.	0.	0.					0.			0.	0.
										0.	0.										0.	0.
																					0.	0.
** END OF RECORD 5 ** (MANUAL INPUT)																						

HONEYWELL PAGE PRINTING SYSTEM- B1185-02

STANDARD TABLES

FORCED OUTAGE RATE

NUCLEAR		FOSSIL-OIL		GAS TURBINE		C-CYCLE		F-COAL-HS		F-COAL-LS	
RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE
100.	0.060	100.	0.030	50.	0.070	200.	0.050	100.	0.110	100.	0.070
500.	0.080	500.	0.050	100.	0.060	400.	0.050	500.	0.120	500.	0.090
800.	0.090	800.	0.100	200.	0.050	600.	0.050	[illegible]	[illegible]	[illegible]	[illegible]

PLANNED OUTAGE RATE

NUCLEAR		FOSSIL-OIL		GAS TURBINE		C-CYCLE		F-COAL-HS		F-COAL-LS	
RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE
100.	0.176	100.	0.050	50.	0.040	200.	0.110	100.	0.050	100.	0.050
500.	0.176	500.	0.110	100.	0.040	400.	0.110	500.	0.120	500.	0.120
800.	0.176	800.	0.150	200.	0.040	600	0.110	800.	0.176	800.	0.176

FORCED AND PLANNED OUTAGE RATES WILL BE ASSIGNED FROM STANDARD TABLE IF USER DID NOT SUPPLY DATA TO INDIVIDUAL UNITS. MAY BE OVERRIDDEN BY INPUT TO GENERATION PLANNING PROGRAM.

CONSTANTS USED TO COMPUTE THERMAL CHARACTERISTICS

	OUTPUT AT MIN. RATING MULTIPLIER	FUEL INPUT AT MIN. RATING MULTIPLIER	NET STATION HEAT RATE BTU/KWH	PLANT ID	RETIREMENT LIMITING POLICY YEARS	RETIREMENT LIMITING ENERGY FACTOR	ATMOSPHERIC HEAT REJECTION COEFFICIENT	SO2 REMOVAL COEFFICIENT	PRECIPITATOR EFFICIENCY
NUCLEAR	0.250	0.300	10300.	1	40	0.	1.00	0.	0.
FOSSIL-OIL	0.200	0.250	9800.	2	40	0.	[illegible]	[illegible]	[illegible]
GAS TURBINE	0.050	0.260	12000.	3	40	0.200			
C-CYCLE	0.200	0.250	8070.	2	40	0.			
F-COAL-HS	0.250	0.280	9550.	3	40	0.			
F-COAL-LS	0.250	0.280	9400.	3	40	0.			
CONV. HYDRO					1000				
PUMPED HYDRO					1000				
COMPR. AIR					30				
ENERGY STO-3					1000				

CONSTANTS ARE ASSIGNED FROM STANDARD TABLE IF USER DID NOT SUPPLY DATA TO INDIVIDUAL UNITS. MAY BE OVERRIDDEN (EXCEPT RETIREMENT YEAR) IN GENERATION PLANNING PROGRAM.

MONTHLY PER UNIT MULTIPLIERS FOR ENERGY LIMITS

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
NUCLEAR	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
FOSSIL-OIL	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
GAS TURBINE	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
C-CYCLE	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
F-COAL-HS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
F-COAL-LS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

HONEYWELL PAGE PRINTING SYSTEM- P1105-02

STANDARD TABLES

FORCED OUTAGE RATE

NUCLEAR		FOSSIL-OIL		GAS TURBINE		C-CYCLE		F-COAL-HS		F-COAL-LS	
RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE
100.	0.060	100.	0.030	50.	0.070	200.	0.050	100.	0.110	100.	0.070
500.	0.080	500.	0.050	100.	0.060	400.	0.050	500.	0.120	500.	0.090
800.	0.090	800.	0.100	200.	0.050	600.	0.050	[illegible]	[illegible]	[illegible]	[illegible]

PLANNED OUTAGE RATE

NUCLEAR		FOSSIL-OIL		GAS TURBINE		C-CYCLE					
RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE	RATING (MW)	P.U. RATE				
100.	0.176	100.	0.050	50.	0.040	200.	0.110	100.	0.050	100.	0.050
500.	0.176	500.	0.110	100.	0.040	400.	0.110	500.	0.120	500.	0.120
800.	0.176	800.	0.150	200.	0.040	600.	0.110	800.	0.176	800.	0.176

FORCED AND PLANNED OUTAGE RATES WILL BE ASSIGNED FROM STANDARD TABLE IF USER DID NOT SUPPLY DATA TO INDIVIDUAL UNITS. MAY BE OVERRIDDEN BY INPUT TO GENERATION PLANNING PROGRAM.

CONSTANTS USED TO COMPUTE THERMAL CHARACTERISTICS

	OUTPUT AT MIN.RATING MULTIPLIER	FUEL INPUT AT MIN.RATING MULTIPLIER	NET STATION HEAT RATE BTU/KWH	PLANT ID	RETIREMENT LIMITING POLICY YEARS	ENERGY FACTOR	ATMOSPHERIC HEAT REJECTION COEFFICIENT	SO2 REMOVAL COEFFICIENT	PRECIPITATOR EFFICIENCY
NUCLEAR	0.250	0.300	10300.	1	40	0.	1.00	0.	0.
FOSSIL-OIL	0.200	0.250	9800.	2	40	0.	[illegible]	[illegible]	[illegible]
GAS TURBINE	0.050	0.260	12000.	3	40	0.200			
C-CYCLE	0.200	0.250	8070.	2	40	0.			
F-COAL-HS	0.250	0.280	9550.	3	40	0.			
F-COAL-LS	0.250	0.280	9400.	3	40	0.			
CONV. HYDRO					1000				
PUMPED HYDRO					1000				
COMPR. AIR					30				
ENERGY STO-3					1000				

CONSTANTS ARE ASSIGNED FROM STANDARD TABLE IF USER DID NOT SUPPLY DATA TO INDIVIDUAL UNITS. MAY BE OVERRIDDEN (EXCEPT RETIREMENT YEAR) IN GENERATION PLANNING PROGRAM.

MONTHLY PER UNIT MULTIPLIERS FOR ENERGY LIMITS

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
NUCLEAR	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
FOSSIL-OIL	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
GAS TURBINE	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
C-CYCLE	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
F-COAL-HS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
F-COAL-LS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

HONEYWELL PAGE PRINTING SYSTEM- P1186-02

* * * * * * * * * FUEL TYPE TABLES * * * * * * * * *

TYPE ID	NAME	UNITS	COSTS C/MBTU	INFLATION PATTERN	HEATING VALUE BTU/UNIT FUEL	LIMITING UNITS	SULFUR LBS/UNIT	CONTENTS PERCENT	CARBON MONOXIDE COEFF.	NITROGEN OXIDE COEFF.	PARTICULATE COEFF.	WATER CONSUMP. COEFF.
1	U308	LB.	57.	1	0.122000E 10	0.	0.	0.	0.	0.	0.	0.
									0.	0.	0.	0.
									0.	0.	0.	
2	OIL 6	BBL	700.	2	0.600000E 07	0.	70.000	3.50	0.	0.	0.	0.
									0.	0.	0.	0.
									0.	0.	0.	
3	OIL 2	BBL	830.	2	0.590000E 07	0.	20.000	1.00	0.	0.	0.	0.
									0.	0.	0.	0.
									0.	0.	0.	
4	HSCOAL	TON	150.	1	0.240000E 08	0.	3.780	1.50	0.	0.	0.	0.
									0.	0.	0.	0.
									0.	0.	0.	
5	LSCOAL	TON	185.	1	0.176000E 08	0.	1.260	0.50	0.	0.	0.	0.
									0.	0.	0.	0.
									0.	0.	0.	

MONTHLY PER UNIT MULTIPLIERS FOR FUEL LIMITS

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
U308 LB.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
OIL 6 BBL	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
OIL 2 BBL	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
HSCOAL TON	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
LSCOAL TON	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

FUEL DATA ASSIGNED FROM STANDARD TABLE IF NOT SUPPLIED FOR INDIVIDUAL UNITS. MAY BE OVERRIDDEN IN GENERATION PLANNING PROGRAM.

HONEYWELL PAGE PRINTING SYSTEM- R1188-02

OGP-6A USERS MANUAL EXAMPLE FILE UM6A
BASE CASE

04/08/83 11.741
JOB NUMBER 1872XU

NUCLEAR FUEL BURNUP AND INVENTORY COSTS ASSIGNED FROM STANDARD TABLE IF NOT SUPPLIED FOR INDIVIDUAL UNITS (2 NUCLEAR TYPES MAXIMUM).

NUCLEAR COSTS

SERVICE YEAR	FUEL BURNUP COST C/MBTU	(P.U.)	FUEL INVENTORY COST $/KW/YR	(P.U.)	SERVICE YEAR	BURNUP COST C/MBTU	(P.U.)	FUEL INVENTORY COST $/KW/YR	(P.U.)
1	57.00	1.06	5.85	1.00	1	0.	1.00	0.	1.00
2		1.00		1.00	2		1.00		1.00
3		0.97		1.00	3		1.00		1.00
4		1.00		1.00	4		1.00		1.00
5		1.00		1.00	5		1.00		1.00

FUEL COSTS, FOSSIL UNITS

* COMPANY * INDEX	NAME	MANUAL + AUTOMATIC FUEL TYPE	GENERATION FILE FUEL TYPE
1	EDISON	2	2

NOTE - PROGRAM WILL USE FUEL COSTS STORED IN GENERATION MODEL FILE

FUEL TYPES FOR TYPE 2 UNITS ARE TREATED ON A COMPANY BASIS. MAY BE OVERRIDDEN BY INPUT TO GENERATION PLANNING PROGRAM.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

OGP-6A USERS MANUAL EXAMPLE FILE UM6A 04/08/83 11.741
BASE CASE JOB NUMBER 1872XU

FUEL COST INFLATION PATTERNS

YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1984*	1.060	1.065	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1985	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1986	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1987	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1988	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1989	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1990	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1991	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1993	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1994	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1995	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1997	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.050	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

* COMPOSITE INFLATION MULTIPLIERS
USED IF COSTS QUOTED BEFORE START OF STUDY

FUEL COST INFLATION MULTIPLIER PATTERNS USED IN STUDY.

COMPOSITE APPLIES IF COSTS QUOTED PRIOR TO START OF STUDY.

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

OPERATING + MAINTENANCE COSTS

	** SET POINT ** (MW)	$/KW/YR	D FACTOR	$/HR/MW
NUCLEAR	1000.	29.00	0.20	0.
FOSSIL-OIL	500.	1.70	0.15	0.
GAS TURBI				
C-CYCLE				
F-COAL-HS				
F-COAL-LS				
CONV. HYD				
PUMPED HY				
COMPR. AI				
ENERGY STO-3		1.00		0.

O&M COSTS ARE ASSIGNED FROM STANDARD TABLE UNLESS INPUT FOR INDIVIDUAL UNITS. MAY BE OVERRIDDEN BY INPUT TO GENERATION PLANNING PROGRAM.

O + M COST INFLATION

YEAR	NUCL.	F-OIL	G.T.	CCYCLE	HSCOAL	LSCOAL	HYDRO	PSH	CAES	ES-3
1984*	1.070	1.070	1.070	1.070	1.070	1.070	1.070	1.070	1.070	1.000
1985	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.000
1986	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.000
1987	1.050						0	1.050	1.050	1.000
1988	1.050						0	1.050	1.050	1.000
1989	1.050						0	1.050	1.050	1.000

O&M INFLATION MULTIPLIER PATTERNS, BY TYPE, USED IN STUDY. COMPOSITE APPLIES IF COSTS QUOTED PRIOR TO START OF STUDY.

* COMPOSITE INFLATION MULTIPLIERS USED IF COSTS QUOTED BEFORE START OF STUDY

*** *MANUAL MAINTENANCE PATTERNS* ***

PTRN	J	F	M	A	M	J	J	A	S	O	N	D
1	0	0	1	1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	1	1	0	0

NOTE WHEN USED, PATTERNS OVERRIDE THE COMPUTED P.O.R.-A 1 INDICATES SCHEDULED MAINTENANCE.

MANUAL MAINTENANCE PATTERNS DEFINED BY USER.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

PLANT COSTS

	** SET POINT ** (MW)	$/KW	D FACTOR
NUCLEAR	1000.	1000.	0.1600
FOSSIL OIL	1000.	685.	0.0000
GAS T			
C-CYC			
F-COA			
F-COA			
CONV.			
PUMPE			
COMPR			
ENERG			

PLANT COSTS ASSIGNED FROM STANDARD TABLE IF NOT SUPPLIED FOR INDIVIDUAL UNITS. USED ONLY FOR UNITS ADDED AFTER THE START OF THE STUDY. MAY BE OVER-RIDDEN IN GENERATION PLANNING PROGRAM.

PLANT COST INFLATION

YEAR	NUCL.	F-OIL	G.T.	CCYCLE	HSCOAL	LSCOAL	HYDRO	PSH	CAES	ES-3
1984*	1.070	1.070	1.070	1.070	1.070	1.070	1.070	1.070	1.070	1.000
1985	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.000
1986	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.000
1987	1.050	1.						1.050	1.050	1.000
1988	1.050	1.						1.050	1.050	1.000
1989	1.050	1.						1.050	1.050	1.000

PLANT COST INFLATION MULTIPLIER PATTERNS, BY TYPE, USED IN STUDY. COMPOSITE APPLIES IF COSTS QUOTED PRIOR TO START OF STUDY.

* COMPOSITE INFLATION MULTIPLIERS
USED IF COSTS QUOTED BEFORE START OF STUDY

PLANT COST MODIFIER

* COMPANY * INDEX	NAME	NUCL.	F-OIL	G.T.	CCYCLE	HSCOAL	LSCOAL
1	EDISON	1.000	1.000	1.000	1.000	1.000	1.000

FIXED CHARGE RATE

NUCL.	F-OIL	G.T.	CCYCLE	HSCOAL	LSCOAL	HYDRO	PSH	CAES	ES-3
0.160	0.160	0.170	0.160	0.160	0.160	0.160	0.160	0.160	0.130

PLANT COST MODIFIERS AND FIXED CHARGE RATES, DEFINED BY COMPANY AND TYPE.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

LIST OF UNIT SELECTIONS

NUCLEAR

TYPE	UNIT ID	RATING MW	EARLIEST SERVICE YEAR
1	19	250.	1990
0	0	0.	0
0	0	0.	0

FOSSIL-OIL

TYPE	UNIT ID	RATING MW	EARLIEST SERVICE YEAR
2	20	80.	1985

GAS TURBINE

TYPE	UNIT ID	RATING MW	EARLIEST SERVICE YEAR
3	22	50.	1985
3	23	75.	1985
3	24	150.	1985

UNIT SIZES AVAILABLE FOR AUTOMATIC ADDITION BY GENERATION PLANNING PROGRAM WHEN PLANNING CRITERION (RISK INDEX OR PERCENT RESERVE GOAL) HAS NOT BEEN SATISFIED.

C-CYCLE

TYPE	UNIT ID	RATING MW	EARLIEST SERVICE YEAR
4	25	85.	1985
4	26	115.	1985
0	0	0.	0

F-COAL-LS

TYPE	UNIT ID	RATING MW	EARLIEST SERVICE YEAR
5	27	200.	1985
5	28	400.	1985
5	29	600.	1994

GAS TURBINES (TYPE 3) SMALLER THAN INDICATED SIZE WILL BE LUMPED BY COMPANY INTO UNITS OF APPROXIMATELY THIS SIZE.
USER MAY INHIBIT LUMPING.

FOSSIL UNITS (TYPE 2) SMALLER THAN INDICATED RATING WILL BE LUMPED INTO EQUIVALENT UNITS OF "EQVMAX" MW.
USER MAY INHIBIT LUMPING.

E N E R G Y S T O R A G E D A T A

IDENT	ES TYPE	FUEL TYPE	HEAT RATE BTU/KWH	DERATION MULTIPLIER	********** MONTHLY CYCLE EFFICIENCY (PU) **********											
PSH	1	0	0.	0.99	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700
CAES	2	3	4100.	0.92	1.330	1.330	1.330	1.330	1.330	1.330	1.3					
ES-3	3	0	0.	0.99	0.700	0.700	0.700	0.700	0.700	0.700	0.7					

CHARACTERISTICS ASSIGNED TO ENERGY STORAGE UNITS. DERATION MULTIPLIER USED IN RELIABILITY CALCULATIONS.

1985	FIRST YEAR OF STUDY
1982	YEAR COSTS ARE QUOTED
10. MW	PROBABILITY TABLE STEP SIZE
0. MW	MINIMUM UNIT SIZE TO CONSIDER 0.003 TIMES TOTAL CAPACITY OR INPUT OVERRIDE (RATING IN MW)
0. MW	LUMPED GAS TURBINE UNIT SIZE, BY COMPANY 0.TIMES STEP SIZE APPLIES TO DATA RETRIEVED FROM DATA FILE ONLY
0.99	DERATION MULTIPLIER, CONVENTIONAL HYDRO

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UNIT CHARACTERISTICS USED IN THE GENERATION PLANNING PROGRAM

UNIT ID.	STATION NAME	TYPE	CO. ID.	INSTALLATION YEAR	INSTALLATION MONTH	POOL PCT. (PU)	RATING MW (MIN.) (MAX-PC) (MAX-R)	FUEL INPUT MEGA BTU/HR (MIN.) (MAX.)	NUCLEAR IDENT.	MATURE FORCED OUTAGE RATE	MATURE PLANNED OUTAGE RATE	1982 O+M COST $/KW/YR	1982 PLANT COST $/KW	1982 FUEL COST $/MBTU	FUEL COST INFT PTRN	HEATING BTU/ UNIT FUEL
1	SEASHORE 01	1	1	1970	1	1.00	208. 830. 830.	2565. 8549.	1	0.150	0.176	30.793	0.	0.604	1	0.122000E 10
2	SEASHORE 02	1	1	1978	1	1.00	208. 830. 830.	2565. 8549.	2	0.090	0.176	30.793	0.	0.604	1	0.122000E 10
3	HARBOR 01	2	1	1948	1	1.00	27. 135. 135.	405. 1620.	0	0.032	0.055	2.311	0.	7.000	2	0.600000E 07
4	LINCOLN 01	2	1	1950	1	1.00						2.000	0.	7.000	2	0.600000E 07
5	STATESIDE 01	2	1	1975	1	1.00						1.700	0.	7.000	2	0.600000E 07
6	HARBOR-GT 01	3	1	1960	1	1.00						0.300	0.	8.300	2	0.590000E 07
7	HARBOR-GT 02	3	1	1965	1	1.00						0.300	0.	8.300	2	0.590000E 07
8	RIVERSIDE 01	3	1	1975	1	1.00	100. 100.	1200.				0.300	0.	8.300	2	0.590000E 07
9	RIVERSIDE 02	3	1	1982	1	1.00	8. 150. 150.	468. 1800.	0	0.055	0.040	0.300	0.	8.300	2	0.590000E 07
10	NORTH SIDE01	4	1	1956	1	1.00	60. 300. 300.	605. 2421.	0	0.050	0.110	0.300	0.	8.300	2	0.590000E 07
11	BLUE LAKE 01	4	1	1967	1	1.00	80. 400. 400.	807. 3228.	0	0.050	0.110	0.300	0.	8.300	2	0.590000E 07

MASTER LIST OF UNITS TO BE STUDIED: GENERATION MODEL UNITS NOT RETIRED PRIOR TO STUDY, MANUAL ADDITION, "AUTOMATIC" UNITS, AND LUMPED FOSSILS (LUMPED GAS TURBINES THROUGHOUT LIST).

CHARACTERISTICS NOT PREVIOUSLY INPUT FOR INDIVIDUAL UNITS HAVE BEEN ASSIGNED FROM STANDARD TABLES.

OPTIONAL OUTPUT (MLOUT).

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY, EUSED, DATA PREP TO GENERATION PLANNING PROGRAM OGP-6A V6.20 PAGE 16

OGP-6A USERS MANUAL EXAMPLE FILE UM6A 04/06/83 11.741
BASE CASE JOB NUMBER 1872XU

UNIT ID.	STATION NAME	TYPE (UNIT) (FUEL)	*OPERATING LIMITATIONS BY MONTH' (CARRYOVER TO NEXT MONTH IS ALLOWED)* ROW 1- ENERGY LIMITS IN MWH ROW 2-FUEL LIMITS IN UNITS OF FUEL											
1	SEASHORE 01	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	SEASHORE 02	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	HARBOR 01	2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	LINCOLN 01	2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	STATESIDE 01	2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	HARBOR-GT 01	3	7440.	6720.	7440.	7200.	7440.	7200.	7440.	7440.	7200.	7440.	7200.	7440.
		3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	HARBOR-GT 02	3	14880.	13440.	148					14880.	14400.	14880.	14400.	14880.
		3	0.	0.						0.	0.	0.	0.	0.
8	RIVERSIDE 01	3	14880.	13440.	148					14880.	14400.	14880.	14400.	14880.
		3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	RIVERSIDE 02	3	22320.	20160.	22320.	21600.	22320.	21600.	22320.	22320.	21600.	22320.	21600.	22320.
		3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	NORTH SIDE01	4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	BLUE LAKE 01	4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	MIDLINE 01	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	MIDLINE 02	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	FRONTIER 01	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	BAY VIEW 01	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
		5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FUEL AND ENERGY LIMITS FOR UNITS IN THE MASTER LIST.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

ENVIRONMENTAL DISCHARGE UNIT CHARACTERISTICS

UNIT ID	STATION NAME	UNIT TYPE	FUEL TYPE	PLANT ID.	P.U. HEAT REJ.	P.U. SO2 REM.	PREC EFF.	HEATING BTU/ UNIT FUEL	SULFUR CONTENT/ UNIT FUEL	****** CARBON MONOXIDE	COEFFICIENTS NITROGEN OXIDE	PARTICULATE	****** WATER CONSUMP.
1	SEASHORE 01	1	1	1	1.000	0.	0.	0.122000E 10	0.	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
2	SEASHORE 02	1	1	1	1.000	0.	0.	0.122000E 10	0.	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
3	HARBOR 01	2	2	1	0.220	0.90	0.	0.600000E 07	70.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
4	LINCOLN 01	2	2	3	0.220	0.90	0.	0.600000E 07	70.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
5	STATESIDE 01	2	2	3	0.220	0.90	0.	0.600000E 07	70.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
6	HARBOR-GT 01	3	3	1	1.000	0.		ENVIRONMENTAL CHARACTERISTICS FOR UNITS IN THE MASTER LIST.		0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
7	HARBOR-GT 02	3	3	1	1.000	0.	0.	0.590000E 07	20.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
8	RIVERSIDE 01	3	3	2	1.000	0.	0.	0.590000E 07	20.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
9	RIVERSIDE 02	3	3	2	1.000	0.	0.	0.590000E 07	20.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
10	NORTH SIDE01	4	3	2	0.450	0.	0.	0.590000E 07	20.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
11	BLUF LAKE 01	4	3	2	0.450	0.	0.	0.590000E 07	20.00	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.
12	MI[illegible]NE 01	5	4	3	0.220	0.	0.85	0.240000E 08	3.78	0.	0.	0.	0.
										0.	0.	0.	0.
											0.	0.	0.

HONEYWELL PAGE PRINTING SYSTEM- P1105-02

PLANT ID	PLANT NAME	REGION ID	REGION NAME
1	COASTAL	1	NORTH
2	CENTRAL	2	SOUTH
3	HILLSIDE	2	SOUTH
100	UNSITED	25	UNSITED

PLANT AND REGION IDENTIFICATION.

HONEYWELL PAGE PRINTING SYSTEM- P1165-02

NUCLEAR DATA

NUCLEAR IDENT	UNIT ID	STATION NAME	RATING MW	FUEL BURNUP COST $/MBTU	FUEL INVENTORY COST $/KW/YR	SERVICE YEAR
1	1	SEASHORE 01	830.	0.604	5.85	1
				0.570	5.85	2
				0.553	5.85	3
				0.570	5.85	4
				0.570	5.85	5
2	2	SEASHORE 02	830.	0.604	5.85	1
				0.570	5.85	2
				0.553	5.85	3
				0.570	5.85	4
				0.570	5.85	5
3	19	NUCLEAR	250.	0.604	5.85	1
				0.570	5.85	2
				0.553	5.85	3
				0.570	5.85	4
				0.570	5.85	5

LISTING OF EXISTING AND COMMITTED NUCLEAR UNITS AND THOSE AVAILABLE FOR AUTOMATIC ADDITION.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

1985 SYSTEM

UNIT ID	STATION NAME	TYPE	COMPANY IDENT.	RATING MW	FUEL COST $/MBTU	FUEL INV. $/KW/YR
1	SEASHORE 01	1	EDISON	830.	0.570	5.85
2	SEASHORE 02	1	EDISON	830.	0.570	5.85
3	HARBOR 01	2	EDISON	135.	7.000	0.
4	LINCOLN 01	2	EDISON	250.	7.000	0.
5	STATESIDE 01	2	EDISON	500.	7.000	0.
6	HARBOR-GT 01	3	EDISON	50.	8.300	0.
7	HARBOR-GT 02	3	EDISON	100.	8.300	0.
8	RIVERSIDE 01	3	EDISON	100.	8.300	0.
9	RIVERSIDE 02	3	EDISON	150.	8.300	0.
10	NORTH SIDE01	4	EDISON	300.	8.300	0.
11	BLUE LAKE 01	4				0.
12	MIDLINE 01	5				0.
13	MIDLINE 02	5				0.
14	FRONTIER 01	6				0.
15	BAY VIEW 01	6	EDISON	550.	1.850	0.
16	HARBOR-GT 03	3	EDISON	100.	8.300	0.
17	PURCHASE	6	EDISON	100.	2.000	0.

ANNUAL PRINTOUT OF ALL GENERATION ON THE SYSTEM. OPTIONAL OUTPUT (KPRINT).

CONV. HYDRO	260.
PUMPED HYDRO	300.
COMPR. AIR	0.
ENERGY STO-3	0.
	******
	5825.

TOTAL MW

EDISON	5825.
	******
	5825.

	DERATED CAPACITY MW
CONV. HYDRO	257.
PUMPED HYDRO	297.
COMPR. AIR	0.
ENERGY STO-3	0.

HONEYWELL PAGE PRINTING SYSTEM- P1188-0

1985 SYSTEM

CONV. HYDRO			PUMPED HYDRO		
MAX.GENERATION BY MONTH	MIN.GENERATION BY MONTH	ENERGY BY MONTH	GEN.RATING BY MONTH	PUMP RATING BY MONTH	STORAGE BY MONTH
250.00	50.00	152000.00	300.00	320.00	2400.00
250.00	50.00	152000.00	300.00	320.00	2400.00
250.00	50.00	152000.00	300.00	320.00	2400.00
260.00	60.00	158000.00	300.00	320.00	2400.00
260.00	60.00	158000.00	300.00	320.00	2400.00
260.00	60.00	158000.00	300.00	320.00	2400.00
260.00	60.00	158000.00	300.00	320.00	2400.00
260.00	60.00	158000.00	300.00	320.00	2400.00
260.00	60.00	158000.00	300.00	320.00	2400.00
250.00	40.00	148000.00	300.00	320.00	2400.00
250.00	40.00	148000.00	300.00	320.00	2400.00
250.00	40.00	148000.00	300.00	320.00	2400.00

COMPR. AIR			ENERGY STG-3		
GEN.RATING BY MONTH	PUMP RATING BY MONTH	STORAGE BY MONTH	GEN.RATING BY MONTH	PUMP RATING BY MONTH	STORAGE BY MONTH
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.

HYDRO AND ENERGY STORAGE UNITS AS LUMPED BY THE PROGRAM.

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

LOAD MODEL FOR YEAR	1985
POOL PEAK IN MW	5000.
EDISON	5000.
TOTAL MWH	26280000.

ANNUAL PRINTOUT OF LOAD MODEL.
OPTIONAL OUTPUT (LPRINT).

HONEYWELL PAGE PRINTING SYSTEM- P1166-02

1985

SEPT.			OCT.			NOV.			DEC.		
PROBABILITY DURATION	PROGRAM LOADS MW	P.U.	PROBABILITY DURATION	PROGRAM LOADS MW	P.U.	PROBABILITY DURATION	PROGRAM LOADS MW	P.U.	PROBABILITY DURATION	PROGRAM LOADS MW	P.U.
0.	4710.	1.000	0.	4430.	1.000	0.	4815.	1.000	0.	4885.	1.000
0.2	4215.	0.895	0.2	4275.	0.965	0.2	4622.	0.960	0.2	4680.	0.958
0.4	4121.	0.875	0.4	4120.	0.930	0.4	4430.	0.920	0.4	4470.	0.915
1.0	3947.	0.838	1.0	3912.	0.883	1.0	4228.	0.878	1.0	4074.	0.834

HOURLY WEEKDAY MW LOAD	HOURLY WEEKEND MW LOAD	HOURLY WEEKDAY MW LOAD	HOURLY WEEKEND MW LOAD	HOURLY WEEKDAY MW LOAD	HOURLY WEEKEND MW LOAD	HOURLY WEEKDAY MW LOAD	HOURLY WEEKEND MW LOAD
20 DAYS	10 DAYS	23 DAYS	8 DAYS	20 DAYS	10 DAYS	21 DAYS	10 DAYS
4710.	3702.	4430.	3528.	4815.	3761.	4885.	4025.
4373.	3449.	4186.	3351.	4543.	3738.	4325.	3885.
4212.	3249.	4127.	3203.	4482.	3565.	4126.	3567.
4197.	3203.	4046.	3173.	4309.	3423.	4126.	3514.
4075.	3073.	3957.	3077.	4263.	3368.	4094.	3428.
4014.	3012.	3927.	2966.	4225.	3251.	4081.	3275.
3983.	2996.	3861.	2877.	4165.	3219.	4036.	3202.
3960.	2958.	3794.	2855.	4127.	3101.	3914.	3188.
3906.	2897.	3691.	2826.	4006.	3101.	3830.	3082.
3815.	2759.	3676.	2789.	3946.	2858.	3766.	2930.
3769.	2605.	3669.	2752.	3802.	2818.	3554.	2890.
3731.	2582.	3565.	2500.	3741.	2818.	3522.	2750.
3616.	2429.	3477.	2404.	3606.	2669.	3502.	2750.
3601.	2375.	3395.	2375.	3523.	2574.	3457.	2631.
2827.	2291.	3048.	2338.	3265.	2480.	3045.	2571.
2759.	2222.	2834.	2249.	3077.	2409.	2917.	2538.
2659.	2184.	2575.	2198.	2774.	2339.	2743.	2432.
2544.	2069.	2442.	1990.	2630.	2260.	2601.	2406.
1901.	1969.	1924.	1879.	2071.	2056.	2202.	2246.
1787.	1854.	1755.	1761.	2003.	1867.	2171.	1941.
1603.	1739.	1585.	1628.	1821.	1859.	2003.	1908.
1534.	1609.	1518.	1599.	1731.	1772.	1900.	1855.
1473.	1509.	1451.	1465.	1550.	1670.	1759.	1782.
1396.	1447.	1259.	1311.	1504.	1364.	1605.	1576.
2130703. MWH		2179237. MWH		2243027. MWH		2305164. MWH	

1985 LOAD FACTOR = 60.0

RELIABILITY AND PRODUCTION COST LOAD MODELS, BY MONTH.

ALL AVAILABLE DATA HAVE BEEN PROCESSED

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

REMOTE TERMINAL OUTPUT
: REPORT 07 WILL PRINT IF M3D=7 INPUT.

```
BLIST L5G70107;L,WBS

BEGIN FILE - L5G70107

    SNUMB = ML5G7, ACTIVITY # = 01, REPORT CODE = 07, RECORD COUNT = 000034


  GENERAL ELECTRIC COMPANY, DATA PREP TO PLANNING PROGRAM OGP-6A V6.20
  01/12/83   13.959  JOB NUMBER 1ML5G7

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  OGP-6A ELECTRIC SYSTEM, FILE UNOGP6A
  USERS MANUAL EXAMPLE

  NAMELIST DATA RECORD  1 HAS BEEN READ
  NAMELIST DATA RECORD  2 HAS BEEN READ
  NAMELIST DATA RECORD  3 HAS BEEN READ
  NAMELIST DATA RECORD  4 HAS BEEN READ
  NAMELIST DATA RECORD  5 HAS BEEN READ
  NAMELIST DATA RECORD  6 HAS BEEN READ

  ****** END OF NAMELIST DATA CHECKING ******

  GENERAL ELECTRIC COMPANY, DATA PREP TO PLANNING PROGRAM OGP-6A V6.20
  01/12/83   13.959  JOB NUMBER 1ML5G7

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  OGP-6A ELECTRIC SYSTEM, FILE UNOGP6A
  USERS MANUAL EXAMPLE



  ALL AVAILABLE DATA HAVE BEEN PROCESSED

READY
```

PROGRAM WILL CHECK ALL NAMELIST DATA FOR ERRORS PRIOR TO EXECUTION.

END OF NAMELIST DATA WILL BE PRINTED IF NO FATAL DATA ERRORS OCCURRED.

INDICATES PROGRAM EXECUTED NORMALLY.

04/08/83 2872XU OGP-6A ##
##
##

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GENERAL ELECTRIC COMPANY, DGP-64 GENERATION PLANNING PROGRAM V6.20
JOB NUMBER 2872XU 04/08/83 11.803
BASED ON DATA PREP JOB 1872XU DATED 04/08/83

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LISTING OF INPUT DATA

```
 1  $INPUT                                                          00002170
 2  PWRATE=1.12,                                                    00002180
 3  PCTRIM=2*.25, 2*0, 2*,25,                                       00002190
 4  SPRES=.15,                                                      00002200
 5  MIX=1,                                                          00002210
 6  NLPW=10,                                                        00002220
 7  EXMXPU=1,                                                       00002230
 8  EXDMWH=20,                                                      00002240
 9  EXRATE=1.07,                                                    00002250
10  RANFOR=-1,                                                      00002260
11  CSTENG=35,                                                      00002270
12  SERATE=1.07,                                                    00002280
13  KEYENV=1,                                                       00002290
14  KOPT=2*1, 0, 7*1,                                               00002300
15  KCYCLE=1,3,3,3,2,2,                                             00002310
16  NIMMOR=1,                                                       00002320
17  FORSHK(1,1)=2, 1.5, 8*1,                                        00002330
18  FORSHK(1,2)=1.5, 2*1.2, 7*1,                                    00002340
19  FORSHK(1,3)=10*1,                                               00002350
20  FORSHK(1,4)=3*1.2, 7*1,                                         00002360
21  FORSHK(1,5)=1.5, 2*1.2, 7*1,                                    00002370
22  FORSHK(1,6)=1.5, 2*1.2, 7*1,                                    00002380
23  PORSHK(1,1)=1.2, 1.1, 8*1,                                      00002390
24  PORSHK(1,2)=3*1.2, 7*1.0,                                       00002400
25  PORSHK(1,3)=10*1,                                               00002410
26  PORSHK(1,4)=3*1.1, 7*1,                                         00002420
27  PORSHK(1,5)=3*1.2, 7*1,                                         00002430
28  PORSHK(1,6)=3*1.2, 7*1,                                         00002440
29  PRGOAL=20,                                                      00002450
30  YRINMX=10,                                                      00002460
31  IDCTRT='ABCTIEXYZTIE',                                          00002470
32  NHCTRT=0,12,                                                    00002480
33  KCTRT=1,1,                                                      00002490
34  DKWYCT=12,14,                                                   00002500
35  RATEIC=2*1.07,                                                  00002510
36  DMWHCT=20,25,                                                   00002520
37  RATEPC=2*1.07,                                                  00002530
38  CTRTMW(1,1)=12*50,                                              00002540
39  CTRTMW(1,2)=3*25, 6*35, 3*25,                                   00002550
40  UNCLM=.95, 1, 1.05,                                             00002560
41  UNCLL=.1, .8, .1,                                               00002570
42  KODE2=15*-1,                                                    00002580
43  KODE3=1, MPRINT=5*0,1,2*0,1,3*0,                                00002590
44  KPRENV=4*0,                                                     00002600
45  LIMIT=0,                                                        00002610
46  KPSUM4=1,                                                       00002620
47  KPSUM2=1,                                                       00002630
48  M3D=7,                                                          00002640
49  KEYSUM=0,                                                       00002650
50  M4D=8,                                                          00002660
51  LCOMIT=1,                                                       00002670
52  NKODE(4)=1,                                                     00002680
53  IYREAD=1987$                                                    00002690
54   ***  IN YEAR 1987, DELETE SECOND CONTRACT ***                  00002700
55  $INPUT                                                          00002710
56  CTRTMW(1,2)=12*0,                                               00002720
57  KOPT=2*1,2*0,6*1,                                               00002730
58  KEYENV=0,                                                       00002740
59  IYREAD=1989$                                                    00002750
60  $INPUT                                                          00002760
61  KOPT=2*1,4*0,4*1,                                               00002770
62  LIMIT=1,                                                        00002780
63  KEYENV=-1,                                                      00002790
64  KPRENV=1,1,1,0,                                                 00002800
65  LPLOLP=1,                                                       00002810
66  IYREAD=0$                                                       00002820
```

GENERAL DATA

ANNUAL OVERRIDE DATA

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

PRESENT AND FUTURE SYSTEM CHARACTERISTICS

UNIT ID	INST. YEAR	STATION NAME	UNIT TYPE	FUEL TYPE	PLANT ID	REGN. ID	MW RATING (MIN.) (MAX.-PC) (MAX.-R)	INPUT (MEGA BTU/HR) (MIN.) (MAX.)	MATURE FORCED OUTAGE RATE	MATURE PLANNED OUTAGE RATE	1982 O+M COSTS FIXED $/KW/YR	1982 O+M COSTS VARIABLE $/MW/HR	1982 FUEL COST $/MBTU	FUEL COST INFLAT. PATTERN	1982 PLANT COST $/KW
1	1970	SEASHORE 01	1	1	1	1	208. 830. 830.	2565. 8549.	0.150	0.176	30.793	0.	0.604	1	0.
2	1978	SEASHORE 02	1	1	1	1	208. 830. 830.	2565. 8549.	0.090	0.176	30.793	0.	0.604	1	0.
3	1946	HARBOR 01	2	2	1	1	27. 135. 135.	405. 1620.	0.032	0.055	2.311	0.	7.000	2	0.
4	1950	LINCOLN 01	2	2	3						2.000	0.	7.000	2	0.
5	1975	STATESIDE 01	2	2	3						1.700	0.	7.000	2	0.
6	1960	HARBOR-GT 01	3	3	1	1	3. 50. 50.	156. 600.	0.070	0.040	0.300	0.	8.300	2	0.
7	1965	HARBOR-GT 02	3	3	1	1	5. 100. 100.	312. 1200.	0.060	0.040	0.300	0.	8.300	2	0.
8	1975	RIVERSIDE 01	3	3	2	2	5. 100. 100.	312. 1200.	0.060	0.040	0.300	0.	8.300	2	0.
9	1982	RIVERSIDE 02	3	3	2	2	8. 150. 150.	468. 1800.	0.055	0.040	0.300	0.	8.300	2	0.
10	1956	NORTH SIDE01	4	3	2	2	60. 300. 300.	605. 2421.	0.050	0.110	0.300	0.	8.300	2	0.
11	1967	BLUE LAKE 01	4	3	2	2	80. 400. 400.	807. 3228.	0.050	0.110	0.300	0.	8.300	2	0.

MASTER LIST OF UNITS TO BE STUDIED.
DATA GENERATED BY DATA PREP PROGRAM
TRANSFERRED VIA FILE 03.
INCLUDES OVERRIDE DATA FROM GENERATION
PLANNING GENERAL DATA.

HONEYWELL PAGE PRINTING SYSTEM— PI1105-02

F-COAL-HS	1	1.500	1.200	27	200.	1985
	2	1.200	1.200	28	400.	1985
	3	1.200	1.200	29	600.	1994
	4	1.000	1.000			
	5	1.000	1.000			
	6	1.000	1.000			
	7	1.000	1.000			
	8	1.000	1.000			
	9	1.000	1.000			
	10	1.000	1.000			
F-COAL-LS	1	1.500	1.200	30	200.	1985
	2	1.200	1.200	31	400.	1985
	3	1.200	1.200	32	600.	1994
	4	1.000	1.000			
	5	1.000	1.000			
	6	1.000	1.000			
	7	1.000	1.000			
	8	1.000	1.000			
	9	1.000	1.000			
	10	1.000	1.000			

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

Error Messages

1982 PRESENT WORTH AT 12.00 PERCENT INTEREST RATE

TARGET RISK INDEX = 10.000 DAYS/YEAR

TARGET PERCENT RESERVE = 20.00

EMERGENCY ENERGY COST 35.00 DOLLARS PER MWH
EMERGENCY ENERGY COST INFLATION FACTOR = 1.070

LOAD UNCERTAINTY

LOAD MULTIPLIER	LIKELIHOOD OF LOAD
0.95	0.10
1.00	0.80
1.05	0.10

LOAD UNCERTAINTY DATA APPLIES ONLY TO RELIABILITY CALCULATIONS.

	WEEKDAY				WEEKEND	
COMMITTMENT ZONES	1	2	3	4	5	6
NUMBER OF HOURS	4	4	4	12	12	12

COMMITMENT ZONES USED IN PRODUCTION COST CALCULATIONS.

MINIMUM UP TIME POLIC.

1 = NO SHUTDOWN
2 = SHUTDOWN ON WEEKEND ONLY
3 = SHUTDOWN ANYTIME

NUCLEAR	1
FOSSIL-OIL	3
GAS TURBINE	3
C-CYCLE	3
F-COAL-HS	2
F-COAL-LS	2

MINIMUM UPTIME RULES, BY UNIT TYPE. USER MAY OVERRIDE FOR INDIVIDUAL UNITS (MSTRUN).

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

EMISSION COEFFICIENTS - UNIT COMMITTMENT

REGION	$/MWH	HEAT REJECTION ATMOS.	WATER	SO2	NOX	CO	PARTIC-ULATE	WATER CONSUMP
1 NORTH	1.0000	0.	0.	0.	0.	0.	0.	0.
2 SOUTH	1.0000	0.	0.	0.	0.	0.	0.	0.
25 UNSITED	1.0000	0.	0.	0.	0.	0.	0.	0.

EMISSION COEFFICIENTS - UNIT DISPATCH

REGION	$/MWH	HEAT REJECTION ATMOS.	WATER	SO2	NOX	CO	PARTIC-ULATE	WATER CONSUMP
1 NORTH	1.0000	0.	0.	0.	0.	0.	0.	0.
2 SOUTH	1.0000	0.	0.	0.	0.	0.	0.	0.
25 UNSITED	1.0000	0.	0.	0.	0.	0.	0.	0.

REGIONAL ENVIRONMENTAL COEFFICIENTS FOR UNIT COMMITMENT AND DISPACICH.

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

Error Messages

OGP-6A USERS MANUAL EXAMPLE FILE UM6A — MONTHLY OUTPUT — 04/08/83 11.803
BASE CASE 2872XU

OPTIMUM

MONTHLY FORECAST POOL PEAK SPINNING RESERVE, AS SPECIFIED BY INPUT.

G.T.
1985 JUNE PRODUCTION COST SUM
COSTS IN THOUSANDS OF DOLLARS

MONTHLY PEAK REDUCED BY HYDRO & CONTRACTS.

TERRITORY PEAK 5000. MW
SPINNING RESERVE 750. MW
THERMAL PEAK 4410. MW

UNIT ID	STATION NAME	CO. IDENT.	UNIT TYPE	FUEL TYPE	RATING MW	MAINTENANCE PTRN.	MONTHS UP	MIN. ON RULE	ENERGY OUTPUT MWH	HRS. ON LINE	CAPACITY FACTOR	FUEL COST	OPER.+ MAINT. COSTS	FUEL INVT. COSTS	FORCED OUTAGE RATE	PLANNED OUTAGE RATE	FUEL PRICE $/MBTU
15	BAY VIEW 01	EDISON	6	5	550.0	OMAINT.		-1	0.	0.	0.	0.	797.	0.	0.092	0.129	2.183
3	HARBOR 01	EDISON	2	2	135.0	0		-1	21335.	697.	0.219	2602.	31.	0.	0.032	0.055	8.376
1	SEASHORE 01	EDISON	1	1	830.0	1		1	507960.	612.	0.850	3518.	2525.	471.	0.150	0.176	0.672
2	SEASHORE 02	EDISON	1	1	830.0	2		1	518590.	655.	0.868	3604.	2525.	471.	0.090	0.176	0.672
13	MIDLINE 02	EDISON	5	4	400.0	0		2	204314.	635.	0.709	3487.	1888.	0.	0.118	0.103	1.770
					.0	0		2	140386.	637.	0.650	2407.	1426.	0.	0.115	0.085	1.770
					.0	0		2	78743.	667.	0.643	1644.	733.	0.	0.074	0.062	2.183
					.0	0		2	46511.	720.	0.646	1122.	476.	0.	0.	0.	2.360
11	BLUE LAKE 01	EDISON	4	3	400.0	0		3	157980.	684.	0.549	13241.	12.	0.	0.050	0.110	9.932
10	NORTH SIDE01	EDISON	4	3	300.0	0		3	95978.	642.	0.444	8177.	9.	0.	0.050	0.110	9.932
5	STATESIDE 01	EDISON	2	2	500.0	0		3	137040.	598.	0.381	12080.	84.	0.	0.050	0.110	8.376
4	LINCOLN 01	EDISON	2	2	250.0	0		3	51989.	578.	0.289	4742.	49.	0.	0.038	0.073	8.376
9	RIVERSIDE 02	EDISON	3	3							.134	2870.	4.	0.	0.055	0.040	9.932
7	HARBOR-GT 02	EDISON	3	3							.097	1665.	3.	0.	0.060	0.040	9.932
8	RIVERSIDE 01	EDISON	3	3							.073	1212.	3.	0.	0.060	0.040	9.932
16	HARBOR-GT 03	EDISON	3	3							.082	1221.	3.	0.	0.060	0.040	9.932
6	HARBOR-GT 01	EDISON	3	3	50.0	0		3	1892.	208.	0.053	450.	1.	0.	0.070	0.040	9.932
22	GAS TURBINE	EDISON	3	3	50.0	0		3	1699.	183.	0.047	398.	1.	0.	0.070	0.040	9.932
22	GAS TURBINE	EDISON	3	3	50.0	0		3	1234.	154.	0.034	318.	1.	0.	0.070	0.040	9.932
	TIE ENERGY								3118.			134.					
	TOTAL THERMAL				5365.0				2001400.			64891.	10573.	942.			
	CONV. HYDRO				260.0				158000.				26.				
	PUMPED HYDRO				300.0				-17259.			0.	30.				
	COMPR. AIR				0.				0.			0.	0.				
	ENERGY STO-3				0.				0.			0.	0.				
	PURCHASE + SALES				85.0				8400.			257.					
	SYSTEM TOTALS				6010.0				2150541.			65148.	10628.	942.			

UNIT ID CORRESPONDS TO MASTER LIST.

UNITS ARE LISTED IN THE ORDER IN WHICH THEY WERE COMMITTED.

TYPE	RATING MW	ENERGY OUTPUT MWH	CAPACITY FACTOR,	FUEL COST THOUSAND $	O + M THOUSAND $	THERMAL $/MWH
1 NUCL.	1660.	1026550.	0.8589	7122.	5051.	11.86
2 F-OIL	885.	210364.	0.3301	19423.	164.	93.11
3 G.T.	600.	37456.	0.0067	8134.	18.	217.65
4 CCYCLE	700.	253957.	0.5039	21418.	21.	84.42
5 HSCOAL	700.	344700.	0.6839	5893.	3314.	26.71
6 LSCOAL	820.	125254.	0.2122	2765.	2006.	38.10
TIENG		3118.		134.		42.88
TOTAL	5365.	2001400.		64891.	10573.	37.71

* * * *MANUAL MAINTENANCE PATTERNS* * * *

PTRN	J	F	M	A	M	J	J	A	S	O	N	D
1	0	0	1	1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	1	1	0	0

VARIABLES KODE2 AND KODE3 DETERMINE FREQUENCY OF THIS OUTPUT. (CAN BE OBTAINED MONTHLY OR ANNUALLY, FOR ALL PASSES OR JUST THE OPTIMUM).

NOTE WHEN USED, PATTERNS OVERRIDE THE COMPUTED P.O.R.-A 1 INDICATES SCHEDULED MAINTENANCE.

MANUAL MAINTENANCE PATTERNS ASSIGNED TO SPECIFIC UNITS BY USER.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

ENVIRONMENTAL REPORT

******** GENERATING UNIT SUMMARY ********

1985 JUNE

UNIT ID	UNIT		AVG. OPER. EFF.	FUEL CONSUMPTION	HEAT REJECTION (MBTU X 1000) ATMOS.	HEAT REJECTION (MBTU X 1000) WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICU-LATES (TONS)	WATER CONSUMP (GX1000)
15	BAY VIEW	01	0.	0. TON	0.	0.	0.	0.	0.	0.	0.
3	HARBOR	01	0.234	51764. BBL	52.	185.	362.3	0.	0.	0.	0.
1	SEASHORE	01	0.331	4289. LB.	3498.	0.	0.	0.	0.	0.	0.
2	SEASHORE	02	0.330	4392. LB.	3589.	0.	0.	0.	0.	0.	0.
13	MIDLINE	02	0.354	82091. TON	280.	993.	310.3	0.	0.	0.	0.
12	MIDLINE	01	0.352	56670. TON	194.	687.	214.2	0.	0.	0.	0.
14	FRONTIER	01	0.357	42795. TON	107.	378.	53.9	0.	0.	0.	0.
17	PURCHASE		0.334	27006. TON	70.	247.	34.0	0.	0.	0.	0.
11	BLUE LAKE	01	0.404	225968. BBL	357.	437.	4519.4	0.	0.	0.	0.
10	NORTH SIDE	01	0.398	139539. BBL	223.	273.	2790.8	0.	0.	0.	0.
5	STATESIDE	01	0.324	240369. BBL	214.	760.	1682.6	0.	0.	0.	0.
4	LINCOLN	01	0.313	94347. BBL	86.	303.	660.4	0.	0.	0.	0.
9	RIVERSIDE	02	0.171	48983. BBL	240.	0.	979.7	0.	0.	0.	0.
7	HARBOR-GT	02	0.143	28411. BBL	144.	0.	568.2	0.	0.	0.	0.
8	RIVERSIDE	01	0.148	20679. BBL	104.	0.	413.6	0.	0.	0.	0.
16	HARBOR-GT	03	0.163	20845. BBL	103.	0.	416.9	0.	0.	0.	0.
6	HARBOR-GT	01	0.143	7673. BBL	39.	0.	153.5	0.	0.	0.	0.
22	GAS TURBINE		0.145	6799. BBL	34.	0.	136.0	0.	0.	0.	0.
22	GAS TURBINE		0.132	5427. BBL	28.	0.	108.5	0.	0.	0.	0.
TOTAL SYSTEM			0.334		9361.	4263.	13404.3	0.	0.	0.	0.

FUEL CONSUMPTION AND ENVIRONMENTAL REPORTS (OPTIONAL). THIS OUTPUT OBTAINED BY INPUTTING KEYENV=1 AND KPRENV=0 (OGP-6A ONLY). FUEL CONSUMPTION REPORT AVAILABLE IN OGP-6 BY INPUTTING KEYENV=-1.

ENVIRONMENTAL REPORT BY UNIT.
KPRENV(1)=0.

HONEYWELL PAGE PRINTING SYSTEM - P1165-02

Error Messages

ENVIRONMENTAL REPORT

******** PLANT SUMMARY ********

1985 JUNE

PLANT ID	PLANT	AVG. OPER. EFF.	TYPE	FUEL CONSUMPTION	HEAT REJECTION (MBTU X 1000) ATMOS.	HEAT REJECTION (MBTU X 1000) WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICULATES (TONS)	WATER CONSUMP (GX1000)
1	COASTAL	0.323	1	8681. LB.	7425.	185.	1500.9	0.	0.	0.	0.
			2	51764. BBL							
			3	56930. BBL							
2	CENTRAL	0.364	3	435169. BBL	924.	709.	8703.4	0.	0.	0.	0.
3	HILLSIDE	0.340	2	334715. BBL	1012.	3368.	3200.3	0.	0.	0.	0.
			3	12226. BBL							
			4	138761. TON							
			5	69801. TON							
TOTAL SYSTEM		0.334			9361.	4263.	13404.3	0.	0.	0.	0.

ENVIRONMENTAL REPORT BY PLANT.
KPRENV(2)=0.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

ENVIRONMENTAL REPORT

******** REGIONAL SUMMARY ********

1985 JUNE

REGION ID	REGION	AVG. OPER. EFF.	HEAT REJECTION (MBTU X 1000) ATMOS.	WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICULATES (TONS)	WATER CONSUMP (GX1000)
1	NORTH	0.323	7425.	185.	1500.9	0.	0.	0.	0.
2	SOUTH	0.347	1936.	4077.	11903.4	0.	0.	0.	0.
TOTAL SYSTEM		0.334	9361.	4263.	13404.3	0.	0.	0.	0.

ENVIRONMENTAL REPORT BY REGION.
KPRENV(3)=0.

HONEYWELL PAGE PRINTING SYSTEM- P1165-02

ENVIRONMENTAL REPORT

******** FUEL SUMMARY ********

1985 JUNE

TYPE ID	TYPE	AVG. OPER. EFF.	FUEL CONSUMPTION	HEAT REJECTION (MBTU X 1000) ATMOS.	HEAT REJECTION (MBTU X 1000) WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICULATES (TONS)	WATER CONSUMP (GX1000)
1	U308	0.331	8681. LB.	7087.	0.	0.	0.	0.	0.	0.
2	OIL 6	0.310	386479. BBL	352.	1249.	2705.4	0.	0.	0.	0.
3	OIL 2	0.334	504326. BBL	1272.	709.	10086.5	0.	0.	0.	0.
4	HSCOAL	0.353	138761. TON	474.	1680.	524.5	0.	0.	0.	0.
5	LSCOAL	0.348	69801. TON	176.	625.	87.9	0.	0.	0.	0.
TOTAL SYSTEM		0.334		9361.	4263.	13404.3	0.	0.	0.	0.

ENVIRONMENTAL REPORT BY FUEL TYPE.
KPRENV(4)=0.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

OGP-6A USERS MANUAL EXAMPLE FILE UM6A - ANNUAL OUTPUT 04/08/83 11.803
BASE CASE 2872XU

OPTIMUM

ANNUAL FORECAST POOL PEAK SPINNING RESERVE, AS SPECIFIED BY INPUT.

G.T.
1985 YEARLY PRODUCTION COST SUMMARY
COSTS IN THOUSANDS OF DOLLARS

ANNUAL PEAK REDUCED BY HYDRO & CONTRACTS.

TERRITORY PEAK 5000. MW
SPINNING RESERVE 750. MW
THERMAL PEAK 4410. MW

UNIT ID	STATION NAME	CO. IDENT.	UNIT TYPE	FUEL TYPE	RATING MW	MAINTENANCE PTRN.	MAINTENANCE MONTHS	MIN. UP RULE	ENERGY OUTPUT MWH	HRS. ON LINE	CAPACTY FACTOR	FUEL COST	OPER.+ MAINT. COSTS	FUEL INVT. COSTS	FORCED OUTAGE RATE	PLANNED OUTAGE RATE	FUEL PRICE $/MBTU
15	BAY VIEW 01	EDISON	6	5	550.0	0 MAY	JUNE	-1	2772077.	6625.	0.575	57588.	22725.	0.	0.092	0.129	2.183
3	HARBOR 01	EDISON	2	2	135.0	0 AUG.		-1	236395.	7759.	0.200	28857.	375.	0.	0.032	0.055	8.376
1	SEASHORE 01	EDISON	1	1	830.0	1		1	5074555.	6202.	0.698	35182.	30724.	5728.	0.150	0.176	0.672
2	SEASHORE 02	EDISON	1	1	830.0	2		1	5411716.	6639.	0.744	37530.	30724.	5728.	0.090	0.176	0.672
13	MIDLINE 02	EDISON	5	4	400.0	0 FEB.		2	2545732.	7134.	0.727	43232.	21828.	0.	0.118	0.103	1.770
12	MIDLINE 01	EDISON	5	4	300.0	0 NOV.		2	1740393.	7115.	0.662	29680.	164.7.	0.	0.115	0.085	1.770
14	FRONTIER 01	EDISON	6	5	170.0	0		2	950122.	8112.	0.638	19845.	8921.	0.	0.074	0.062	2.183
17	PURCHASE	EDISON	6	5	100.0	0		2	569597.	8760.	0.650	13729.	5789.	0.	0.	0.	2.360
11	BLUE LAKE 01	EDISON	4	3	400.0	0 JULY		3	1768408.	7535.	0.505	147977.	144.	0.	0.050	0.110	9.932
10	NORTH SIDE01	EDISON	4	3	300.0	0 JAN.		3	1066236.	7381.	0.406	91210.	108.	0.	0.050	0.110	9.932
5	STATESIDE 01	EDISON	2	2	500.0	0 MAY		3	1516983.	7111.	0.346	134984.	1022.	0.	0.050	0.110	8.376
4	LINCOLN 01	EDISON	2	2	250.0	0 DEC.		3	547026.	6170.	0.250	50012.	601.	0.	0.038	0.073	8.376
9	RIVERSIDE 02	EDISON	3	3	150.0	0		3	154355.	5070.	0.117	34366.	54.	0.	0.055	0.040	9.932
7	HARBOR-GT 02	EDISON	3	3	100.0	0 APRIL		3	59871.	3945.	0.068	15950.	36.	0.	0.060	0.040	9.932
8	RIVERSIDE 01	EDISON	3	3	100.0	0 AUG.		3	54952.	3345.	0.063	13913.	36.	0.	0.060	0.040	9.932
16	HARBOR-GT 03	EDISON	3	3	100.0	0		3	41006.	2971.	0.047	11635.	36.	0.	0.060	0.040	9.932
6	HARBOR-GT 01	EDISON	3	3	50.0	0 NOV.		3	13647.	2288.	0.031	4280.	18.	0.	0.070	0.040	9.932
22	GAS TURBINE	EDISON	3	3	50.0	0		3	13194.	2164.	0.030	4076.	18.	0.	0.070	0.040	9.932
22	GAS TURBINE	EDISON	3	3	50.0	0		3	10459.	1922.	0.024	3503.	18.	0.	0.070	0.040	9.932
	TIE ENERGY								15114.			648.					
	TOTAL THERMAL				5365.0				24561841.			778198.	139635.	11457.			
	CONV. HYDRO				260.0				1848000.				307.				
	PUMPED HYDRO				300.0				-221223.			0.	361.				
	COMPR. AIR				0.				0.			0.	0.				
	ENERGY STO-3				0.				0.			0.	0.				
	PURCHASE + SALES				85.0				91560.			2804.					
	SYSTEM TOTALS				6010.0				26280178.			781002.	140302.	11457.			

TYPE	RATING MW	ENERGY OUTPUT MWH	CAPACITY FACTOR,	FUEL COST THOUSAND $	O + M THOUSAND $	THERMAL $/MWH
1 NUCL.	1660.	10486271.	0.7211	72712.	61449.	12.79
2 F-OIL	885.	2300404.	0.2967	213852.	1998.	93.83
3 G.T.	600.	347485.	0.0661	87724.	216.	253.08
4 CCYCLE	700.	2834643.	0.4623	239187.	252.	84.47
5 HSCOAL	700.	4206126.	0.6990	72912.	38285.	25.94
6 LSCOAL	820.	4291796.	0.5975	91162.	37435.	29.96
TIENG		15114.		648.		42.88
TOTAL	5365.	24561841.		778198.	139635.	37.37

* * * *MANUAL MAINTENANCE PATTERNS* * * *

PTRN	J	F	M	A	M	J	J	A	S	O	N	D
1	0	0	1	1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	1	1	0	0

NOTE WHEN USED, PATTERNS OVERRIDE THE COMPUTED P.O.R.-A 1 INDICATES SCHEDULED MAINTENANCE.

HONEYWELL PAGE PRINTING SYSTEM- P1165-02

ENVIRONMENTAL REPORT

******** GENERATING UNIT SUMMARY ********

1985 YEARLY

UNIT ID	UNIT	AVG. OPER. EFF.	FUEL CONSUMPTION	HEAT REJECTION (MBTU X 1000) ATMOS.	HEAT REJECTION (MBTU X 1000) WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICULATES (TONS)	WATER CONSUMP (GX1000)
15	BAY VIEW 01	0.359	1499161. TON	3723.	13201.	1888.9	0.	0.	0.	0.
3	HARBOR 01	0.234	574181. BBL	580.	2058.	4019.3	0.	0.	0.	0.
1	SEASHORE 01	0.331	42884. LB.	34998.	0.	0.	0.	0.	0.	0.
2	SEASHORE 02	0.331	45745. LB.	37338.	0.	0.	0.	0.	0.	0.
13	MIDLINE 02	0.356	1017887. TON	3463.	12278.	3847.6	0.	0.	0.	0.
12	MIDLINE 01	0.354	698806. TON	2383.	8448.	2641.5	0.	0.	0.	0.
14	FRONTIER 01	0.357	516614. TON	1287.	4563.	650.9	0.	0.	0.	0.
17	PURCHASE	0.334	330599. TON	852.	3022.	416.6	0.	0.	0.	0.
11	BLUE LAKE 01	0.405	2525304. BBL	3989.	4875.	50506.1	0.	0.	0.	0.
10	NORTH SIDE01	0.396	1556538. BBL	2495.	3049.	31130.8	0.	0.	0.	0.
5	STATESIDE 01	0.321	2685838. BBL	2406.	8531.	18800.9	0.	0.	0.	0.
4	LINCOLN 01	0.313	995110. BBL	903.	3201.	6965.8	0.	0.	0.	0.
9	RIVERSIDE 02	0.152	586478. BBL	2933.	0.	11729.6	0.	0.	0.	0.
7	HARBOR-GT 02	0.127	272198. BBL	1402.	0.	5444.0	0.	0.	0.	0.
8	RIVERSIDE 01	0.134	237134. BBL	1213.	0.	4748.7	0.	0.	0.	0.
16	HARBOR-GT 03	0.119	198562. BBL	1032.	0.	3971.2	0.	0.	0.	0.
6	HARBOR-GT 01	0.108	73047. BBL	384.	0.	1460.9	0.	0.	0.	0.
22	GAS TURBINE	0.110	69558. BBL	365.	0.	1391.2	0.	0.	0.	0.
22	GAS TURBINE	0.101	59701. BBL	317.	0.	1195.6	0.	0.	0.	0.
TOTAL SYSTEM		0.336		102065.	63226.	150809.4	0.	0.	0.	0.

HONEYWELL PAGE PRINTING SYSTEM- R1185-02

ENVIRONMENTAL REPORT

******** PLANT SUMMARY ********

1985 YEARLY

PLANT ID	PLANT	AVG. OPER. EFF.	TYPE	FUEL CONSUMPTION	HEAT REJECTION (MBTU X 1000) ATMOS.	WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICULATES (TONS)	WATER CONSUMP (GX1000)
1	COASTAL	0.329	1	88628. LB.	79458.	15259.	16784.4	0.	0.	0.	0.
			2	574181. BBL							
			3	543808. BBL							
			5	1499161. TON							
2	CENTRAL	0.359	3	4905754. BBL	10630.	7925.	98115.1	0.	0.	0.	0.
3	HILLSIDE	0.341	2	3680948. BBL	11977.	40043.	35910.0	0.	0.	0.	0.
			3	129339. BBL							
			4	1716693. TON							
			5	847212. TON							
TOTAL SYSTEM		0.336			102065.	63226.	150809.4	0.	0.	0.	0.

HONEYWELL PAGE PRINTING SYSTEM- P1183-02

ENVIRONMENTAL REPORT

******** REGIONAL SUMMARY ********

1985 YEARLY

REGION ID	REGION	AVG. OPER. EFF.	HEAT REJECTION (MBTU X 1000) ATMOS.	WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICU-LATES (TONS)	WATER CONSUMP (GX1000)
1	NORTH	0.329	79458.	15259.	16784.4	0.	0.	0.	0.
2	SOUTH	0.346	22607.	47968.	134025.1	0.	0.	0.	0.
TOTAL SYSTEM		0.336	102065.	63226.	150809.4	0.	0.	0.	0.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

Error Messages

ENVIRONMENTAL REPORT

******** FUEL SUMMARY ********

1985 YEARLY

TYPE ID	TYPE	AVG. OPER. EFF.	FUEL CONSUMPTION	HEAT REJECTION (MBTU X 1000) ATMOS.	WATER	SO2 (TONS)	NOX (TONS)	CO (TONS)	PARTICU-LATES (TONS)	WATER CONSUMP (GX1000)
1	U308	0.331	88628. LB.	72337.	0.	0.	0.	0.	0.	0.
2	OIL 6	0.308	4255129. BBL	3889.	13790.	29785.9	0.	0.	0.	0.
3	OIL 2	0.330	5578901. BBL	14130.	7925.	111578.0	0.	0.	0.	0.
4	HSCOAL	0.355	1716693. TON	5846.	20726.	6489.1	0.	0.	0.	0.
5	LSCOAL	0.355	2346373. TON	5863.	20786.	2956.4	0.	0.	0.	0.
TOTAL SYSTEM		0.336		102065.	63226.	150809.4	0.	0.	0.	0.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

OPTIMUM

LSCOAL

1989 YEARLY PRODUCTION COST SUMMARY
COSTS IN THOUSANDS OF DOLLARS

TERRITORY PEAK 5738. MW THERMAL PEAK 4960. MW
SPINNING RESERVE 861. MW

UNIT ID	STATION NAME	CO. IDENT.	UNIT TYPE	FUEL TYPE	RATING MW	MAINTENANCE PTRN.	MONTHS	MIN. UP RULE	ENERGY OUTPUT MWH	HRS. ON LINE	CAPACTY FACTOR	FUEL COST	OPER.+ MAINT. COSTS	FUEL INVT. COSTS	FORCED OUTAGE RATE	PLANNED OUTAGE RATE	FUEL PRICE $/MBTU
15	BAY VIEW 01	EDISON	6	5	550.0	0	APRIL MAY	-1	3108581.	6625.	0.645	78055.	27761.	0.	0.092	0.129	2.653
1	SEASHORE 01	EDISON	1	1	830.0	1		1	5147[illegible]8.	6202.	0.708	43336.	37346.	6963.	0.150	0.176	0.817
2	SEASHORE 02	EDISON	1	1	830.0	2		1	5456 39.	6639.	0.751	45972.	37346.	6963.	0.090	0.176	0.817
13	MIDLINE 02	EDISON	5	4	400.0	0	JULY	2	271[illegible]796.	7070.	0.774	55803.	26384.	0.	0.118	0.103	2.151
12	MIDLINE 01	EDISON	5	4	300.0	0	JAN.	2	1898699.	7094.	0.722	39193.	19967.	0.	0.115	0.085	2.151
30	F-COAL-LS	EDISON	6	5	200.0	0		2	1242618.	7775.	0.709	31300.	12250.	0.	0.113	0.082	2.653
30	F-COAL-LS	EDISON	6	5	200.0	0	JUNE	2	1101760.	7136.	0.629	27800.	11690.	0.	0.113	0.082	2.653
14	FRONTIER 01	EDISON	6	5	170.0	0		2	996094.	8112.	0.669	25222.	10844.	0.	0.074	0.062	2.653
18	BAY VIEW 02	EDISON	6	5	50.0	0	JUNE JULY	2	234940.	6683.	0.536	5958.	3329.	0.	0.084	0.060	2.653
11	BLUE LAKE 01	EDISON	4	3	400.0	0	FEB.	3	1694566.	7648.	0.541	195343.	175.	0.	0.050	0.110	12.304
10	NORTH SIDE01	EDISON	4	3	300.0	0	NOV. DEC.	3	1170420.	6837.	0.445	121678.	131.	0.	0.050	0.110	12.304
26	C-CYCLE	EDISON	4	3	115.0	0	FEB.	3	437192.	7335.	0.434	45931.	50.	0.	0.060	0.121	12.304
26	C-CYCLE	EDISON	4	3	115.0	0	NOV.	3	404531.	7180.	0.402	42780.	50.	0.	0.060	0.121	12.304
26	C-CYCLE	EDISON	4	3	115.0	0	JAN.	3	363317.	7147.	0.361	38920.	50.	0.	0.060	0.121	12.304
5	STATESIDE 01	EDISON	2	2	500.0	0	MAY	3	1423360.	7014.	0.325	157986.	1242.	0.	0.050	0.110	10.377
4	LINCOLN 01	EDISON	2	2	250.0	0	AUG.	3	487256.	6266.	0.222	56410.	731.	0.	0.038	0.073	10.377
9	RIVERSIDE 02	EDISON	3	3	150.0	0		3*	112579.	4574.	0.086	35339.	66.	0.	0.055	0.040	12.304
7	HARBOR-GT 02	EDISON	3	3	100.0	0	MAY	3*	50838.	3741.	0.058	18058.	44.	0.	0.060	0.040	12.304
8	RIVERSIDE 01	EDISON	3	3	100.0	0	DEC.	3*	40640.	3411.	0.046	15807.	44.	0.	0.060	0.040	12.304
16	HARBOR-GT 03	EDISON	3	3	100.0	0		3*	32651.	3262.	0.037	14402.	44.	0.	0.060	0.040	12.304
6	HARBOR-GT 01	EDISON	3	3	50.0	0	OCT.	3*	11633.	2634.	0.027	5636.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0		3*	11514.	2602.	0.026	5570.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0	NOV.	3*	9381.	2209.	0.021	4683.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0		3*	8664.	2353.	0.020	4836.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0	AUG.	3*	7531.	2202.	0.017	4460.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0		3*	7293.	2150.	0.017	4347.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0	JAN.	3*	6226.	1905.	0.014	3824.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0		3*	5608.	1846.	0.013	3658.	22.	0.	0.070	0.040	12.304
22	GAS TURBINE	EDISON	3	3	50.0	0		3*	5117.	1743.	0.012	3433.	22.	0.	0.070	0.040	12.304
	TIE ENERGY								13869.			779.					
	TOTAL THERMAL				6225.0				28402740.			1136520.	189741.	13926.			
	CONV. HYDRO				260.0				1848000.				373.				
	PUMPED HYDRO				300.0				-232093.			0.	438.				
	COMPR. AIR				220.0				138174.			27942.	1286.				
	ENERGY STO-3				0.				0.			0.	0.				
	PURCHASE + SALES				50.0				0.			0.					
	SYSTEM TOTALS				7055.0				30156821.			1164462.	191838.	13926.			

PAGE PRINTING SYSTEM- P1165-02

HONEYWELL

TYPE	RATING MW	ENERGY OUTPUT MWH	CAPACITY FACTOR,	FUEL COST THOUSAND $	O + M THOUSAND $	THERMAL $/MWH
1 NUCL.	1660.	10604067.	0.7292	89308.	74691.	15.47
2 F-OIL	750.	1910617.	0.2908	214396.	1973.	113.25
3 G.T.	900.	309673.	0.0393	124055.	395.	401.87
4 CCYCLE	1045.	4270027.	0.4665	444652.	458.	104.24
5 HSCOAL	700.	4610495.	0.7519	94995.	46351.	30.66
6 LSCOAL	1170.	6683992.	0.6521	168335.	65874.	35.04
TIENG		13869.		779.		56.20
TOTAL	6225.	28402740.		1136520.	189741.	46.69

* * * *MANUAL MAINTENANCE PATTERNS* * * *

PTRN	J	F	M	A	M	J	J	A	S	O	N	D
1	0	0	1	1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	1	1	0	0

NOTE WHEN USED, PATTERNS OVERRIDE THE COMPUTED P.O.R.-A 1 INDICATES SCHEDULED MAINTENANCE.

* THIS UNIT IS ENERGY OUTPUT AND/OR FUEL USAGE LIMITED

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION PLANNING PROGRAM OGP-6A V6.20 PAGE 30

OGP-6A USERS MANUAL EXAMPLE FILE UM6A 04/08/83 11.803
BASE CASE 2872XU

1989 YEARLY
SUMMARY OF GENERATING UNITS WITH OUTPUT LIMITATIONS

UNIT ID	STATION NAME	CO. ID.	UNIT TYPE	FUEL TYPE	ENERGY LIMIT (MWH)	ENERGY GENERATED (MWH)	FUEL USAGE LIMIT UNITS FUEL	FUEL UNITS USED	FULL LOAD HOURS AVAILABLE	HOURS ON LINE	MAXIMUM CAPACITY FACTOR	ACTUAL CAPACITY FACTOR
9	RIVERSIDE 02	1	3	3	262800.	112579.		486819.	1752.	4574.	0.200	0.086
7	HARBOR-GT 02	1	3	3	175200.	50838.		248757.	1752.	3741.	0.200	0.058
8	RIVERSIDE 01	1	3	3	175200.	40640.		217748.	1752.	3411.	0.200	0.046
16	HARBOR-GT 03	1	3	3	175200.	32651.		198392.	1752.	3262.	0.200	0.037
6	HARBOR-GT 01	1	3	3	87600.	11633.		77644.	1752.	2634.	0.200	0.027
22	GAS TURBINE	1	3	3	87600.	11514.		76734.	1752.	2602.	0.200	0.026
22	GAS TURBINE	1	3	3	87600.	9381.		64514.	1752.	2209.	0.200	0.021
22	GAS TURBINE	1	3	3	87600.	8664.		66622.	1752.	2353.	0.200	0.020
22	GAS TURBINE	1	3	3	87600.	7531.		61433.	1752.	2202.	0.200	0.017
22	GAS TURBINE	1	3	3	87600.	7293.		59882.	1752.	2150.	0.200	0.017
22	GAS TURBINE	1	3	3	87600.	6226.		52684.	1752.	1905.	0.200	0.014
22	GAS TURBINE	1	3	3	87600.	5608.		50393.	1752.	1846.	0.200	0.013
22	GAS TURBINE	1	3	3	82928.	5117.		47298.	1752.	1743.	0.189	0.012

SUMMARY OF 1989 FUEL AND ENERGY LIMITS.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

YEAR	CONTRACT WITH	HOURS /DAY	PERIOD	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
				MONTHLY CONTRACTS IN MW (PURCHASES +, SALES -)											
1985	ABCTIE	0	WEEKDAYS	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
	XYZTIE	12	WEEKDAYS	25.	25.	25.	35.	35.	35.	35.	35.	35.	25.	25.	25.
				*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	TOTAL MW			75.	75.	75.	85.	85.	85.	85.	85.	85.	75.	75.	75.
	TOTAL MWH X 1000			7.	6.	6.	9.	9.	8.	9.	9.	8.	7.	6.	6.
1985	I/C (MILLION $)	1.250													
	P/C (MILLION $)	2.804		0.202	0.173	0.193	0.283	0.283	0.257	0.283	0.283	0.257	0.211	0.184	0.193
1986	ABCTIE	0	WEEKDAYS	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
	XYZTIE	12	WEEKDAYS	25.	25.	25.	35.	35.	35.	35.	35.	35.	25.	25.	25.
				*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	TOTAL MW			75.	75.	75.	85.	85.	85.	85.	85.	85.	75.	75.	75.
	TOTAL MWH X 1000			7.	6.	6.	9.	9.	9.	9.	9.	9.	7.	6.	7.
1986	I/C (MILLION $)	1.337													
	P/C (MILLION $)	3.000		0.216	0.187	0.206	0.303	0.289	0.289	0.303	0.289	0.289	0.226	0.187	0.216
1987	ABCTIE	0	WEEKDAYS	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
				*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	TOTAL MW			50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
	TOTAL MWH X 1000			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1987	I/C (MILLION $)	0.842													
	P/C (MILLION $)	0.		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1988	ABCTIE	0	WEEKDAYS	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
				*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	TOTAL MW			50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
	TOTAL MWH X 1000			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1988	I/C (MILLION $)	0.900													
	P/C (MILLION $)	0.		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1989	ABCTIE	0	WEEKDAYS	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
				*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	TOTAL MW			50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
	TOTAL MWH X 1000			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1989	I/C (MILLION $)	0.963													
	P/C (MILLION $)	0.		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

RECORD OF CONTRACTED PURCHASES AND SALES.
I/C IS TOTAL DEMAND CHARGE FOR EACH YEAR.
P/C IS TOTAL ENERGY CHARGE FOR EACH YEAR.

HONEYWELL PAGE PRINTING SYSTEM- P1186-02

GENERAL ELECTRIC COMPANY, EUSED GENERATION PLANNING PROGRAM OGP-6A V6.20 PAGE 34

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BASE CASE 2872XU

UNIT SIZE GUIDE - INSTALL 1 BASE LOAD UNITS IN 1 YEARS

FUEL + O+M COSTS LEVELIZED OVER 10 YEARS

SYSTEM WAS PLANNED TO A 20.0 PERCENT RESERVE GOAL

1982 PRESENT WORTH AT 12.000 PERCENT INTEREST RATE

SUMMARY 1
RECORD OF ALL DECISION PASSES AND ASSOCIATED RELIABILITY, INVESTMENT AND PRODUCTION COST CALCULATIONS.
KPRSUM=0 INHIBITS PRINTING.

	* UNITS ADDED OR RETIRED *					PEAK	TOTAL CAPAB.,MW		*** 10.00 DAYS/YEAR ***			*** 1.0 HOURS/YEAR ***				
	UNIT	RATING	UNIT			LOAD	YEAR	TIME	EXCESS		CAPABIL.	EXCESS		CAPABIL.	PERCENT	MW
YEAR	RUN (1)	ID (2)	MW (3)	TYPE (4)	MONTH (5)	CO. (6)	MW (7)	END (8)	OF PK. (9)	LOAD-MW (10)	DAYS/YEAR (11)	LOAD-MW (12)	LOAD-MW (13)	HOURS/YEAR (14)	LOAD-MW (15)	RESERVE (16)	SLOPE (17)
1985		HYD	100.	7												
1985	1	17	100.	6	1	1	5000.	5815.	5825.	-351.	26.312226	4649.	0.	0.	0.	18.2	333.
1985	2	22	50.	3	0	1	5000.	5865.	5875.	-306.	23.379555	4694.	0.	0.	0.	19.2	333.
1985	3	22	50.	3	0	1	5000.	5915.	5925.	-261.	20.679205	4739.	0.	0.	0.	20.2	333.
1985	ALTERNATIVE 1	MW ADDED=	300.	(18)	COSTS,INVEST=		44.0	FUEL=	781.0	O+M=	140.3	INVTRY=	11.5	TOTAL=	976.8 (19)		
	CUMULATIVE P.W.				INVEST=		28.0	FUEL=	496.3	O+M=	89.2	INVTRY=	7.3				
1985	OPTIMUM = ALTERNATIVE 1				TOTAL COST IN MILLION DOLLARS =				976.8	CUMULATIVE COST =		976.8				
					PRESENT WORTH TOTAL			=	620.8	CUMULATIVE P.W. =		620.8				

PLEASE REFER TO PAGE 6-49 FOR EXPLANATIONS.

1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	23	75.	3	0	1											
1989	2	23	75.	3	0	1											
1989	2	23	75.	3	0	1	5738.	6820.	6830.	-161.	15.898757	5576.	0.	0.	0.	19.9	325.
1989	3	23	75.	3	0	1	5738.	6895.	6905.	-97.	13.176594	5641.	0.	0.	0.	21.2	325.
1989	ALTERNATIVE 1	MW ADDED=	300.	COSTS,INVEST=		124.0	FUEL=	1676.8	O+M=	202.6	INVTRY=	16.7	TOTAL=	2020.2			
1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	26	115.	4	0	1											
1989	2	26	115.	4	0	1	5738.	6825.	6835.	-169.	16.242025	5568.	0.	0.	0.	20.0	325.
1989	3	26	115.	4	0	1	5738.	6940.	6950.	-74.	12.348618	5664.	0.	0.	0.	22.0	325.
1989	ALTERNATIVE 2	MW ADDED=	345.	COSTS,INVEST=		140.6	FUEL=	1630.9	O+M=	202.7	INVTRY=	16.7	TOTAL=	1990.8			
1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	27	200.	5	0	1	5738.	6795.	6805.	-203.	17.630589	5535.	0.	0.	0.	19.5	325.
1989	3	27	200.	5	0	1	5738.	6995.	7005.	-42.	11.297843	5696.	0.	0.	0.	23.0	328.

1989	ALTERNATIVE 3	MW ADDED=	400.	COSTS,INVEST=	216.8	FUEL=	1412.0	O+M=	236.7	INVTRY=	16.7	TOTAL=	1882.3				
1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	30	200.	6	0	1	5738.	6795.	6805.	-192.	17.249100	5545.	0.	0.	0.	19.5	325.
1989	3	30	200.	6	0	1	5738.	6995.	7005.	-28.	10.778770	5710.	0.	0.	0.	23.0	333.
1989	ALTERNATIVE 4	MW ADDED=	400.	COSTS,INVEST=	213.9	FUEL=	1420.1	O+M=	231.4	INVTRY=	16.7	TOTAL=	1882.2				
1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	30	200.	6	0	1	5738.	6795.	6805.	-192.	17.249100	5545.	0.	0.	0.	19.5	325.
1989	3	27	200.	5	0	1	5738.	6995.	7005.	-36.	11.064334	5702.	0.	0.	0.	23.0	333.
1989	ALTERNATIVE 5	MW ADDED=	400.	COSTS,INVEST=	215.3	FUEL=	1417.7	O+M=	234.1	INVTRY=	16.7	TOTAL=	1883.9				
1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	30	200.	6	0	1	5738.	6795.	6805.	-192.	17.249100	5545.	0.	0.	0.	19.5	325.
1989	3	26	115.	4	0	1	5738.	6910.	6920.	-98.	13.203121	5640.	0.	0.	0.	21.5	325.
1989	ALTERNATIVE 6	MW ADDED=	315.	COSTS,INVEST=	172.0	FUEL=	1525.7	O+M=	217.0	INVTRY=	16.7	TOTAL=	1931.4				
1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	30	200.	6	0	1	5738.	6795.	6805.	-192.	17.249100	5545.	0.	0.	0.	19.5	325.
1989	3	23	75.	3	0	1	5738.	6870.	6880.	-128.	14.340683	5610.	0.	0.	0.	20.8	325.
1989	ALTERNATIVE 7	MW ADDED=	275.	COSTS,INVEST=	165.2	FUEL=	1539.6	O+M=	217.0	INVTRY=	16.7	TOTAL=	1938.5				
1989	1	0	0.	0	0	0	5738.	6595.	6605.	-363.	26.644613	5375.	0.	0.	0.	16.0	328.
1989	2	30	200.	6	0	1											
1989	2	30	200.	6	0	1	5738.	6995.	7005.	-46.	11.420022	5592.	0.	0.	0.	23.0	328.
**********															**********		
1989	ALTERNATIVE 4	MW ADDED=	400.	COSTS,INVEST=	213.9	FUEL=	1164.5	O+M=	191.8	INVTRY=	13.9	TOTAL=	1584.1				
	(20)	CUMULATIVE P.W.		INVEST=	213.1	FUEL=	2614.2	O+M=	395.4	INVTRY=	32.1						
1989	OPTIMUM = ALTERNATIVE 4	TOTAL COST IN MILLION DOLLARS =	1584.1	CUMULATIVE COST =	6518.9												
		PRESENT WORTH TOTAL =	639.8	CUMULATIVE P.W. =	3254.8												

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

EXPLANATION OF SUMMARY 1 OUTPUT

1. Pass through reliability or percent reserve calculations.
2. Unit ID from Master list.
3. Rating of units added (positive) or retired (negative).
4. Type of unit (nuclear, gas turbine, etc.).
5. Month of installation or retirement.
6. Company to which unit was assigned. If hydro or lumped fossil, no company identification will be printed.
7. Forecast annual peak for pool and individual companies (if more than one company is present).
8. Total installed generating capacity, at year end, for pool and individual companies.
9. Total installed capacity of pool at time of peak.
10. Difference between load-carrying capability at specified loss-of-load probability of 10.0 days/year (12) and pool peak (7).
11. Daily loss-of-load probability (LOLP).
12. Load-carrying capability of system at specified daily LOLP.
13. Difference between load-carrying capability at specified hourly LOLP of 1.0 hours/year (15) and pool peak (7) (calculated if KLOLP(2)≠0).
14. Hourly LOLP (calculated if KLOLP(2)≠0).
15. Load-carrying capability of system at specified hourly LOLP (calculated if KLOLP(2)≠0).
16. Percent reserve calculated according to KEYPRC.
17. Slope-m of capacity outage table. Load change in MW that will increase daily LOLP by factor of e (base of natural logarithms).
18. Total MW added by this decision pass (including manual installations).
19. Summary of investment and production costs for this alternative.
20. Components of cumulative present worth of annual charges (optional output; to print, set KPCUMT=1).

ORIGINAL SYSTEM

COMPANY	TOTAL CAP.	NUCL.	F-OIL	G.T.	CCYCLE	HSCOAL	LSCOAL	HYDRO	PSH	CAES	ES-3
1	5625.	1660.	885.	500.	700.	700.	720.	160.	300.	0.	0.
POOL	5625.	1660.	885.	500.	700.	700.	720.	160.	300.	0.	0.

SUMMARY 2
RECORD OF SYSTEM COMPOSITION IN YEAR BEFORE STUDY. OPTIONAL OUTPUT OBTAINED BY KPSUM2=1.

TYPE	TYPE ID
NUCL.	1
F-OIL	2
G.T.	3
CCYCLE	4
HSCOAL	5
LSCOAL	6
HYDRO	7
PSH	8
CAES	9
ES-3	10

HONEYWELL PAGE PRINTING SYSTEM- P118B-1

GENERAL ELECTRIC COMPANY, EUSED GENERATION PLANNING PROGRAM OGP-6A V6.20 PAGE 40

OGP-6A USERS MANUAL EXAMPLE FILE UM6A 04/08/83 11.803
BASE CASE 2872XU

YEAR 1989

DECISION COSTS WERE COMPUTED USING 1) LEVELIZED FUEL AND O+M COSTS (10 YEARS)
2) MATURE OUTAGE RATES OF NEW UNITS

	RETIREMENTS			ADDITIONS			TIME OF PEAK MW LOAD	TOTAL CAP.	CAP. INCL CRTC	PCT RES	********** CUMULATIVE ADDITIONS BY TYPE (LINE 1) TOTAL CAPACITY BY TYPE (LINE 2) **********								
CO.	MW	TYPE	M	MW	TYPE	M					NUCL.	F-OIL	G.T.	CCYCLE	HSCOAL	LSCOAL	HYDRO	PSH	CAES	ES-3
1	0.	0	0	200.	6	0														
	0.	0	0	200.	6	0					0.	-270.	400.	345.	0.	350.	100.	0.	220.	0.
							5738.	7005.			1660.	615.	900.	1045.	700.	1070.	260.	300.	220.	0.
POOL											0.	-270.	400.	345.	0.	350.	100.	0.	220.	0.
	0.			400.			5738.	7005.			1660.	615.	900.	1045.	700.	1070.	260.	300.	220.	0.
									7055.	23.0										

ENERGY SOURCE (MWH)			ENERGY DISPOSITION (MWH)				
THERMAL GEN.	HYDRO GEN.	TOTAL GEN.		*** ENERGY PUMP	TOT.GEN.	STORAGE *** NET TO LOAD	POOL LOAD
			PSH	-773321.	541228.	-232093.	
			CAES	-415720.	553894.	138174.	
			ES-3	0.	0.	0.	
28402742.	1848000.	30156821.		-1189041.	1095122.	-93919.	30250740.

TOTAL LOAD: 30156821.

LOAD CARRYING CAPACITY AT 10.000 DAYS/YEAR = 5692. MW LOLP AT 5738. MW POOL PEAK= 11.420 DAYS/YEAR

SUMMARY 2 (CONTINUED)
SUMMARY OF UNIT ADDITIONS AND RETIREMENTS BY COMPANY; ENERGY ACCOUNTING; AND RELIABILITY CALCULATIONS.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

OGP-6A USERS MANUAL EXAMPLE FILE UM6A 04/08/83 11.803
BASE CASE 2872XU

YEAR	POOL PEAK (MW)	TOTAL ENERGY (GWH)	LOAD FACTOR	YEARLY COSTS (MILLION $) INVEST.	FUEL	O+M	NUC INV	TOTAL	YEARLY COSTS ($/MWH) INV.	FUEL	O+M	N.I.	TOTAL
1985	5000.	26280.2	60.00	44.0	781.0	140.3	11.5	976.8	1.7	29.7	5.3	0.4	37.2
1986	5175.	27199.8	60.00	33.3	967.5	141.4	12.0	1154.2	1.2	35.6	5.2	0.4	42.4
1987	5356.	28151.7	60.00	60.2	1085.3	150.4	12.6	1308.6	2.1	38.6	5.3	0.4	46.5
1988	5544.	29216.8	60.00	109.0	1213.0	160.0	13.3	1495.3	3.7	41.5	5.5	0.5	51.2
1989	5738.	30156.8	60.00	213.9	1164.5	191.8	13.9	1584.1	7.1	38.6	6.4	0.5	52.5

CUMULATIVE PRESENT WORTH (MILLION $)

YEAR	INVEST.	FUEL	O+M	NUC INV	TOTAL
1985	28.0	496.3	89.2	7.3	620.8
1986	46.9	1045.3	169.4	14.1	1275.7
1987	77.4	1595.2	245.6	20.5	1938.6
1988	126.7	2143.9	317.9	26.5	2615.0
1989	213.1	2614.2	395.4	32.1	3254.8

SUMMARY OF COSTS. TO INHIBIT PRINTING, INPUT KEYSUM=1.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

```
                    GENERAL ELECTRIC COMPANY
      OGP-6A GENERATION PLANNING PROGRAM V6.20 - SUMMARY OUTPUT
      ********************************************************

   OGP-6A USERS MANUAL EXAMPLE      FILE UM6A
   BASE CASE
   JOB NUMBER 2872XU          04/08/83  11.803
   BASED ON DATA PREP JOB 1872XU DATED 04/08/83
   ********************************************************

GENERATION SYSTEM
          NUCL.    F-OIL    G.T.     CCYCLE   HSCOAL   LSCOAL TYPES
TYPE         1        2       3        4        5        6    7-10
OPTMZING     0        0    1985     1987     1989     1989    ***
PCT TRIM    25       25       0        0        0        0
1984 MW   1660      885     500      700      700      720    460  SUM=   5625
*************************************************************************
                                                                  TOTAL
                                                                  CAPAB.
YR      Y E A R L Y          M W          A D D I T I O N S      + TIES
**      ******* ******* ******* ******* ******* ******* ***** ****** ****
85                      2X  50                          100*  100*  6010
86                      6X  50                                      6210
87                            2X 115                     50*         6455
88                            1X 115                           220*  6655
89                                                2X 200              7055
*************************************************************************
*************************************************************************
MW ADD       0        0     400      345        0      550    320 SUM=   1615
MW RET       0     -135       0        0        0     -100      0 SUM=   -235
****** ******  ******  ******  ******  ******  ******  ****  ***********
1989      1660      750     900     1045      700     1170    780 SUM=   7005
PCT TOT   23.7     10.7    12.8     14.9     10.0     16.7   11.1 SUM=100 PCT
*************************************************************************
AUTO         0        0     400      345        0      400      0 SUM=   1145
PCT TOT     0.       0.    34.9     30.1       0.     34.9     0.  SUM=100 PCT

* COMMITTED MW
```

SUMMARY 3
6-PAGE SUMMARY ALWAYS PRINTED AS PART OF 06 BULK OUTPUT. IF M3D=7, WILL ALSO PRINT ON REMOTE TERMINAL.

PAGE 1: TABULATION OF MW OF THERMAL ADDITIONS, AND TOTAL MW OF CAPACITY AND CONTRACTS AT TIME OF PEAK.

HONEYWELL PAGE PRINTING SYSTEM- P1188-02

GENERAL ELECTRIC COMPANY
OGP-6A GENERATION PLANNING PROGRAM V6.20 - SUMMARY OUTPUT
****

OGP-6A USERS MANUAL EXAMPLE FILE UM6A
BASE CASE
JOB NUMBER 2872XU 04/08/83 11.803
BASED ON DATA PREP JOB 1872XU DATED 04/08/83
****

GENERATION SYSTEM

	THERMAL	HYDRO	PSH	CAES	ES-3	
TYPE	1-6	7	8	9	10	
OPTMZING		***	0	0	0	
PCT TRIM			0	0	0	
1984 MW	5165	160	300	0	0	SUM= 5625

****

YR	YEARLY MW ADDITIONS					TOTAL CAPAB. +TIES	LOAD MW	LOLP D/Y
**	******	******	******	******	******	******	*****	*******
85	200	100*				6010	5000	20.6792
86	300					6210	5175	19.7996
87	280					6455	5356	18.5531
88	115			220*		6655	5544	17.2476
89	400					7055	5738	11.4200
**********								
MW ADD	1295	100	0	220	0	SUM= 1615		
MW RET	-235	0	0	0	0	SUM= -235		
******	******	******	******	******	******	**********		
1989	6225	260	300	220	0	SUM= 7005		
PCT TOT	88.9	3.7	4.3	3.1	0.	SUM= 100 PCT		
**********								
AUTO	1145		0	0	0	SUM= 1145		
PCT TOT	100.0		0.	0.	0.	SUM= 100 PCT		

PAGE 2: TABULATION OF HYDRO AND ENERGY STORAGE ADDITIONS, TOTAL MW OF CAPACITY AND CONTRACTS AT TIME OF PEAK, PEAK LOADS, AND DAILY LOLP.

* COMMITTED MW

HONEYWELL PAGE PRINTING SYSTEM- P1180-02

GENERAL ELECTRIC COMPANY
OGP-6A GENERATION PLANNING PROGRAM V6.20 - SUMMARY OUTPUT
****

OGP-6A USERS MANUAL EXAMPLE FILE UM6A
BASE CASE
JOB NUMBER 2872XU 04/08/83 11.803
BASED ON DATA PREP JOB 1872XU DATED 04/08/83
****

YEAR	LOAD	TOTAL CAPABILITY (INCLUDING TIES) YEAR END	TIME OF PEAK	PCT. RES.	LOSS OF LOAD PROBABILITY D/Y	H/Y	COST IN MILLION $ YEARLY COST	CUM. PW TOTAL
****	*****	*****	*****	****	******	******	*******	*******
1985	5000	5990	6010	20.2	20.679	0.	976.8	620.8
1986	5175	6190	6210	20.0	19.800	0.	1154.2	1275.7
1987	5356	6445	6455	20.5	18.553	0.	1308.6	1938.6
1988	5544	6645	6655	20.0	17.248	0.	1495.3	2615.0
1989	5738	7045	7055	23.0	11.420	0.	1584.1	3254.8

PAGE 3: TABULATION OF LOADS, CAPACITY, PERCENT RESERVE, DAILY AND HOURLY LOLP, AND TOTAL COSTS.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY
OGP-6A GENERATION PLANNING PROGRAM V6.20 - SUMMARY OUTPUT
****

OGP-6A USERS MANUAL EXAMPLE FILE UM6A
BASE CASE
JOB NUMBER 2872XU 04/08/83 11.803
BASED ON DATA PREP JOB 1872XU DATED 04/08/83
****

			LOSS OF LOAD PROBABILITY					
YEAR	EXCESS (MW)	DAYS/YEAR	JAN. JULY	FEB. AUG.	MARCH SEPT.	APRIL OCT.	MAY NOV.	JUNE DEC.
1985	-261.	20.6792	1.8168	1.6652	1.7229	1.7937	1.8129	1.6134
			1.8050	1.6896	1.6202	1.8498	1.6248	1.6650
1986	-243.	19.7996	1.6769	1.5248	1.6714	1.7346	1.7245	1.5886
			1.7223	1.5798	1.5825	1.8182	1.4893	1.6868
1987	-223.	18.5531	1.5298	1.4231	1.6395	1.5681	1.5061	1.5527
			1.6177	1.5228	1.4805	1.6466	1.4771	1.5892
1988	-194.	17.2476	1.3481	1.3833	1.5778	1.3894	1.4680	1.4390
			1.3732	1.5555	1.4191	1.4413	1.4407	1.4122
1989	-46.	11.4200	0.9598	0.8820	1.0350	0.8632	1.0284	0.9664
			0.8931	1.0284	0.8685	1.0284	0.9739	0.8930

PAGE 4: TABULATION OF DAILY LOLP, BY MONTH. (OPTIONAL OUTPUT OBTAINED BY LPLOLP=1.)

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

GENERAL ELECTRIC COMPANY
GGP-6A GENERATION PLANNING PROGRAM V6.20 - SUMMARY OUTPUT
****

GGP-6A USERS MANUAL EXAMPLE FILE UM6A
BASE CASE
JOB NUMBER 2872XU 04/08/83 11.803
BASED ON DATA PREP JOB 1872XU DATED 04/08/83
****

YR	POOL PEAK (MW)	TOTAL ENERGY (GWH)	LOAD FACTOR	TOTAL COSTS (MIL.$)	YEARLY $/MWH				
					INV.	FUEL	O+M	N.I.	TOTAL
**	******	******	******	******	*****	*****	*****	*****	******
85	5000	26280	60.00	977	1.68	29.72	5.34	0.44	37.17
86	5175	27200	60.00	1154	1.22	35.57	5.20	0.44	42.43
87	5356	28152	60.00	1309	2.14	38.55	5.34	0.45	46.48
88	5544	29217	60.00	1495	3.73	41.52	5.48	0.45	51.18
89	5738	30157	60.00	1584	7.09	38.61	6.36	0.46	52.53

PAGE 5: TABULATION OF POOL PEAK, ENERGY, LOAD FACTOR, TOTAL COSTS AND COMPONENTS.
KEYSUM=1 INHIBITS PRINTING.

HONEYWELL PAGE PRINTING SYSTEM- P1135-02

GENERAL ELECTRIC COMPANY
OGP-6A GENERATION PLANNING PROGRAM V6.20 - SUMMARY OUTPUT
****

OGP-6A USERS MANUAL EXAMPLE FILE UM6A
BASE CASE
JOB NUMBER 2872XU 04/08/83 11.803
BASED ON DATA PREP JOB 1872XU DATED 04/08/83
****

GENERATION SYSTEM

TYPE	1	2	3	4	5	6	7	8	9	10	SUM
84	1660	885	500	700	700	720	150	300	0	0	5615

****

YR	YEARLY			PERCENT			MIX				TOTAL CAPAB.
85	28.1	15.0	10.1	11.8	11.8	13.9	4.2	5.1	0.	0.	5915
86	27.1	14.5	14.7	11.4	11.4	11.8	4.1	4.9	0.	0.	6115
87	26.0	13.8	14.1	14.5	10.9	12.0	3.9	4.7	0.	0.	6395
88	25.2	11.4	13.6	15.8	10.6	11.7	3.8	4.5	3.3	0.	6595
89	23.7	10.7	12.9	14.9	10.0	16.7	3.6	4.3	3.1	0.	6995
ADD	0	0	400	345	0	550	100	0	220	0	1615
RET	0	-135	0	0	0	-100	0	0	0	0	-235
89	1660	750	900	1045	700	1170	250	300	220	0	6995

****
****

PAGE 6: TABULATION OF YEAR-END PERCENT MIX BY TYPE.
KEYSUM=1 INHIBITS PRINTING.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

```
                    GENERAL ELECTRIC COMPANY
      OGP-6A GENERATION PLANNING PROGRAM V6.20 - SUMMARY OUTPUT
      ********************************************************

   OGP-6A USERS MANUAL EXAMPLE      FILE UMGA
   BASE CASE
   JOB NUMBER 2872XU            04/08/83  11.803
   BASED ON DATA PREP JOB 1872XU DATED 04/08/83
   ************************************************************

                                                  *10.00 DAYS/YR *
                                RETIRED   PEAK  TOTAL  *  1.0 HOURS/YR*      TOTAL
          UNIT RATING UNIT        LOAD CAPABIL  EXCESS  RISK    PCT.  COST
YEAR RUN  ID    MW   TYPE MO.      MW     MW   LOAD-MW DAYS/YR RES.  M$

          HYD   100.0  7
1985  1   17    100.0  6    1    5000.  5825.  -351.  26.3122   18.
                                                  0.     0.
1985  2   22     50.0  3    0    5000.  5875.  -306.  23.3796   19.
                                                  0.     0.
1985  3   22     50.0  3    0    5000.  5925.  -261.  20.6792   20.
                                                  0.     0.
ALT  1 MW=  300.0 I=    44.0 F=    781.0 O=   14 3 N=   11.5      976.8

         I=    44.020 F=    781.002 O=  140.302 NI=   11.457     976.781

1985         CUM COST, M$=    976.8 CUM PW TOTAL=    620.8
*************************************************************************

1989   SIZES (MW)    0,   0,  75, 115, 200, 200,   0,   0,   0,
ALT                              MW      INV     FUEL     O+M      NI      TOTAL
 4   0 0 0 0 0 2 0 0 0   400.0    214.   1420.1   231.4    16.7    1882.2
 3   0 0 0 0 2 0 0 0 0   400.0    217.   1412.0   236.7    16.7    1882.3
 5   0 0 0 0 1 1 0 0 0   400.0    215.   1417.7   234.1    16.7    1883.9
 6   0 0 0 1 0 1 0 0 0   315.0    172.   1525.7   217.0    16.7    1931.4
 7   0 0 1 0 0 1 0 0 0   275.0    165.   1539.6   217.0    16.7    1938.5
 2   0 0 0 3 0 0 0 0 0   345.0    141.   1630.9   202.7    16.7    1990.8
 1   0 0 4 0 0 0 0 0 0,  300.0    124.   1676.8   202.6    16.7    2020.2

1989  1    0     0.    0    0    5738.  6605.  -363.  26.6446   16.
                                                  0.     0.
           30   200.0  6    0
1989  2    30   200.0  6    0    5738.  7005.   -46.  11.4200   23.
                                                  0.     0.
ALT  4 MW=  400.0 I=   213.9 F=   1164.5 O=   191.8 N=   13.9     1584.1

         I=   213.873 F=   1164.462 O=  191.838 NI=   13.926     1584.099

1989         CUM COST, M$=   6518.9 CUM PW TOTAL=    3254.8
*************************************************************************

                          CASE TOTALS
TOTAL INVESTMENT AND PRODUCTION COST IN MILLION DOLLARS          6518.9
1982 PRESENT WORTH AT 12.00 PERCENT INTEREST RATE                3254.8
```

SUMMARY 4
ABBREVIATED RECORD OF 10 BEST DECISION PASSES WITH DETAILS ON OPTIMUM PASS.

OPTIONAL OUTPUT
- M4D=0 NO OUTPUT
- M4D=6 BULK OUTPUT ONLY
- M4D=7 BULK AND REMOTE TERMINAL OUTPUT
- M4D=8 BULK AND REMOTE TERMINAL OUTPUT

SIZES OPTIMIZED ON FOR EACH TYPE (6 POSSIBLE THERMAL AND 3 POSSIBLE ENERGY STORAGE) IN GIVEN YEAR.

COSTS ASSOCIATED WITH GIVEN DECISION PASS.

NUMBER OF UNITS OF EACH TYPE ADDED IN GIVEN DECISION PASS.

HONEYWELL PAGE PRINTING SYSTEM- P1185-02

REMOTE TERMINAL OUTPUT
REPORT 07 WILL PRINT IF M3D=7 INPUT.

```
BLIST L5G70207;L,W85

BEGIN FILE - L5G70207

    SNUMB = ML5G7, ACTIVITY # = 02, REPORT CODE = 07, RECORD COUNT = 000194


 GENERAL ELECTRIC COMPANY, OGP-6A GENERATION PLANNING PROGRAM V6.20
 JOB NUMBER 2ML5G7            01/12/83  13.963
 BASED ON DATA PREP JOB 1ML5G7 DATED 01/12/83

 COPYRIGHT, 1971, GENERAL ELECTRIC

 NAMELIST DATA RECORD  1 HAS BEEN READ
 NAMELIST DATA RECORD  2 HAS BEEN READ
 NAMELIST DATA RECORD  3 HAS BEEN READ

 ****** END OF NAMELIST DATA CHECKING ******
```

PROGRAM WILL CHECK ALL NAMELIST DATA FOR ERRORS PRIOR TO EXECUTION.

END OF NAMELIST DATA WILL BE PRINTED IF NO FATAL DATA ERRORS OCCURRED.

```
 ALL AVAILABLE DATA HAVE BEEN PROCESSED

READY
```

INDICATES PROGRAM EXECUTED NORMALLY.

ERROR MESSAGES
Section Index

	Page
SYSTEM ERRORS	7-1
System Error Message Codes	7-1
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ERROR MESSAGES PRINTED BY DATA PREPARATION PROGRAM	7-10
ERROR MESSAGES PRINTED BY GENERATION PLANNING PROGRAM	7-12

SYSTEM ERRORS

This section reviews the system errors most commonly encountered when OGP is run. These errors are detected by the system rather than the program, and usually indicate a problem with either the JCL or the data file.

Listed below are the abort codes that appear in response to a job status request and the error messages that appear on the $$ Report. Suggested solutions to the problems are also listed.

The last portion of this section deals with locating errors in the NAMELIST input data.

SYSTEM ERROR MESSAGE CODES

Terminal Message Response to BST	$$ Report	Solution
ABT 01/G-005 01 refers to Activity 01 02 refers to Activity 02, etc.	I8 Run Time Exhausted	1. Examine output, Report 06, for possible data error which may have caused program to loop. 2. If using many program options, may need to increase processor time limit on $:LIMITS JCL.
ABT 01/G-022	F0 Memory Address Fault	Very serious. Recommend contact EUSED in Schenectady. Program tried to address a location beyond limits assigned to current program. Usually caused by a data error. Contact EUSED in Schenectady.

SYSTEM ERROR MESSAGE CODES (Continued)

Terminal Message Response to BST	$$ Report	Solution
ABT 01/G-031	F7 - Undefined Op Code	Program tried to access an instruction consisting of all zeros. Usually caused by data error. Contact EUSED in Schenectady.
ABT 01/G-040	I7 - Access Beyond File	Examine JCL's for possible error. Especially check $:PRMFL:H*, E, R, etc.
ABT 01/G-052 (see sample, page 7-4)	M4/N4 - I/O LIM	Program core limits as defined on $:LIMITS JCL too low. List Foreground file EUSED* for latest program limits.
ABT 01/G-060	M6 - Call/RSTR CHECKSUM	H* Program may have been destroyed.
ABT 01/G-063	M2/M3 - Call Name Missing	Check $:PROGRAM:RLHS for misspelling.
ABT 01/G-077	> 0 Output Lines Exceeded	Increase lines of output parameter on $:LIMITS JCL. Review available output and review output options defined by data.
ABT 03/S-B4		In CONVER activity, used 06 Report Code instead of IN. e.g., $:REMOTE:IN, not $:REMOTE:06 $:FILE:IN, not $:FILE:06

SYSTEM ERROR MESSAGE CODES (Continued)

Terminal Message Response to BST	$$ Report	Solution
ABT 01/S-FS	Users FS MME GEBORT	Creating Background file space that already exists. Delete BCR directive from data file.
ABT 01/S-GR (see sample, page 7-5)	Aborted by GFRC Routine GF200 or GF275 Code 01 File Code 01	Maximum size of block size created in BCR is too low. Increase maximum size. (Must first purge file.) BPU BG file and then BCR BG file; SIZE(1,XX).
ABT 01/S-Q6 (see sample, page 7-6)	Users Q6	Scan Report 06 using BEDIT search for TRACE, print 20 lines. Error message is usually self explanatory.

G-052 ERROR MESSAGE

```
READY
BST LBC7
LBC7 DONE     ABT 01/G-052
00007 RETURNED
00001 SUBMITTED
 SUBMITTED/PURGED FILES
 -NONE
 SYSOUT REPORTS
LBC701$$-RET'D
LBC70174-RET'D
LBC700**-RET'D

READY
```

```
BLIST LBC701$$;B,L

BEGIN FILE - LBC701$$

$$ MLBC7 ENTERED S1170A AT 14.168 FROM SPAWN  1-10-12

0001 $ SNUMB MLBC7 SPAWNED BY 1DIP1-01
0002 $ IDENT A043005,MLBC7
0003 $$ USERID A043005$ RRMARK3
0004 A$ PROGRAM RLH$ 00120
0005 $ LIMIT$ 01,20K,,10K 00130
0006 $$ PRMFL H*,E,R,A043093/.GNMD6 00140
0007 $ FILE 02,X2R,10L 00150
0008 $ DATA 15 00160
0009 $ REMOTE 06 00170
0010 $ REMOTE 07 00180
0011 $ ENDJOB
 TOTAL CARD COUNT THIS JOB = 000045


* ACTY-01 $CARD #0004 .GNMD6 11/20/82 SW=000000000000
M4/M4-I/O LI%. CALL/SAVE AT 000120 I=1000 SW=000000000000

 START 14.169 LINES 49 PROC 0.0000 I/O 0.000 IU 5 MEMORY 20K
 STOP 14.169 LIMIT 10240 LIMIT 0.0100 LIMIT CU 5 M*T 15
 SWAP 0.000 PK MOUNT 0
 LAPSE 0.000 FC D TYPE BUSY IP/AT FP/RT IS/#C MS/#E ADDRESS T#/PK#
```

S-GR ERROR MESSAGE

```
READY
BST L783
L783 DONE     ABT 01/S-GR
00038 RETURNED
00006 SUBMITTED
 SUBMITTED/PURGED FILES
 -NONE
 SYSOUT REPORTS
L78301$$-RET'D
L7830106-RET'D
L7830174-RET'D
L78300**-RET'D

READY
BLIST L78301$$;B,L

BEGIN FILE - L78301$$

$$ ML783 ENTERED S1170A AT 12.824 FROM SPAWN  0-28-09


0001 $ SNUMB ML783 SPAWNED BY 1DIP2-01
0002 $ IDENT A043005,ML783
0003 $$ USERID A043005$ RRMARK3
0004 A$ PROGRAM RLHS 00140
0005 $ LIMITS 02,25K,,10K 00150
0006 $$ PRMFL H*,E,R,A043093/.LIMI3 00160
0007 $$ PRMFL 01,W,S,A043005/LLSAMPLE 00170
0008 $ DATA 15 00190
0009 $ REMOTE 06 00200
0010 $ REMOTE 07 00210
0011 $ ENDJOB
 TOTAL CARD COUNT THIS JOB = 000142


* ACTY-01 $CARD #0004 .LIMI3 11/26/82 SW=000000000000
ABORTED BY GFRC ROUTINE GF200 CODE 1 FILE CODE 01
 * USERS GR MME GEBORT AT 017660 I=1020 SW=000000000000

 * WRAPUP BEGUN
ABORTED BY GFRC ROUTINE CLOSE CODE 1 FILE CODE 01
 * USERS GF MME GEBORT AT 017660 I=1000 SW=000000000000

 START 12.826 LINES 694 PROC 0.0005 I/O 0.001 IU 5 MEMORY 25K
 STOP 12.828 LIMIT 10240 LIMIT 0.0200 LIMIT CU 5 M*T 108
 SWAP 0.000 PK MOUNT 0
 LAPSE 0.001 FC D TYPE BUSY IP/RT FP/RT IS/#C MS/#E ADDRESS T#/PK#
```

S-Q6 ERROR MESSAGE

```
BST L777
L777 DONE     ABT 01/S-Q6
00020 RETURNED
00006 SUBMITTED
 SUBMITTED/PURGED FILES
 -NONE
 SYSOUT REPORTS
L77701$$-RET'D
L7770106-RET'D
L7770174-RET'D
L7770107-RET'D
L77700◆◆-RET'D


READY
REDIT JOB:L7770106
FORMAT > U
CODE > Carriage Return
EDIT > E
CMD > L/TRACE/
196  ERROR #35; TRACE OF CALLS IN REVERSE ORDER
CMD > T,20
196  ERROR #35; TRACE OF CALLS IN REVERSE ORDER
197  CALLING ID ABSOLUTE ARGUMENT ARGUMENT ARGUMENT ARGUMENT ARGUMENT
198  ROUTINE # LOCATION #1 #2 #3 #4 #5
199  .FEFT. 137 036204 000000000043
200  ..... 210 053103 000000000002
201  REQUEST TO REWIND ON 02
202  WAS IGNORED
203 <◆><◆><◆>
```

JCL ERRORS

Sometimes the system detects a JCL error before program execution begins.

In the example shown below, no abort code was provided in response to the BST. However, the 00002 RETURNED (see Line 4) line tells us that only two pages (two blocks of 320 words) of output were returned, thus indicating that an error has occurred.

To find the problem, print the $$ Report (see below). In this case, the error message that printed was:

INCORRECT CAT/FILE DESCRIPTION at MLSAMPLE..01

To detect the cause of the error, check MLSAMPLE for a misspelling or check the possibility that permanent file space never was created in Background.

```
READY
BST L791
L791 DONE
00002 RETURNED
00006 SUBMITTED
 SUBMITTED/PURGED FILES
 -NONE
 SYSOUT REPORTS
L79101$$-RET'D
L79100**-RET'D

READY
BLIST L79101$$;B,L

BEGIN FILE - L79101$$

$$ ML791 ENTERED S1170A AT 13.007 FROM SPAWN  0-08-10

0001 $ SNUMB ML791 SPAWNED BY 1DIP1-01
0002 $ IDENT A043005,ML791
0003 $$ USERID A043005$ PRMARK3
0004 A$ PROGRAM RLH$ 00140
0005 $ LIMIT$ 02,25K,,10K 00150
0006 $$ PRMFL H*,E,R,A043093/.LDMD3 00160
0007 $$ PRMFL 01,W,S,A043005/ML$AMPLE 00170
0008 $ DATA 15 00190
0009 $ REMOTE 06 00200
0010 $ REMOTE 07 00210
0011 $ ENDJOB
 TOTAL CARD COUNT THI$ JOB = 000142

INCORRECT CAT/FILE DESCRIPTION -AT- ML$AMPLE ..01


READY
```

NAMELIST DATA ERRORS

If a NAMELIST data error is encountered (e.g., a misspelled variable name or a missing comma), an error message will not print in response to the BST or on the $$ Report. The only error indication that would be received is a small number of pages of output RETURNED in response to the BST.

Listing Report 07 will indicate the number of NAMELIST data records successfully read. It will print up to the record with the problem data. Editing Report 06 will give the specific NAMELIST data error message.

Below is an example of the process that should be followed when the pages RETURNED in response to the BST indicate an error, but the BST response or $$ Report contain no abort codes or error messages.

BLISTing Report 07 shows the NAMELIST records read. In this case, the error occurred in the first record.

```
BLIST LV450107;L,W85

BEGIN FILE - LV450107

     SNUMB = MLV45, ACTIVITY # = 01, REPORT CODE = 07, RECORD COUNT = 000010


 GENERAL ELECTRIC COMPANY, DATA PREP TO PLANNING PROGRAM DGP-6A V6.20
 12/07/82   10.021  JOB NUMBER 1MLV45

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 DGP6A USER MANUAL EXAMPLE,     FILE UM6A
 BASE CASE


READY
```

When a BEDIT is done on Report 06 (see sample), the actual NAMELIST error message will be printed. In the example shown, a variable was misspelled on line 320.

```
EDIT JOB:LV450106
FORMAT > U
CODE > Carriage Return
EDIT > E,L
CMD > RE
 ERROR #43; TRACE OF CALLS IN REVERSE ORDER
 CALLING ID ABSOLUTE ARGUMENT ARGUMENT ARGUMENT ARGUMENT ARGUMENT
 ROUTINE # LOCATION #1 #2 #3 #4 #5
 ..NMLI 410 027702 012716000053 012717010201
 LISTIN 155 067460 000000000017 314547646320 034524701000 000000000000

 GPA 218 221320 000000000000
 .FSETU 0 024057
 ILLEGAL VARIABLE NAME BELOW
ERROR IN COLUMN 7 OF
NSTRAT=1985, 00320 ERROR
SKIPPING TO NEXT VARIABLE NAME
 ERROR #43; TRACE OF CALLS IN REVERSE ORDER
 CALLING ID ABSOLUTE ARGUMENT ARGUMENT ARGUMENT ARGUMENT ARGUMENT
 ROUTINE # LOCATION #1 #2 #3 #4 #5
 ..NMLI 410 027702 012716000053 012717010201
 LISTIN 181 067670 000000000017 314547646320
 GPA 218 221320 000000000001
 .FSETU 0 024057
 ILLEGAL VARIABLE NAME BELOW
ERROR IN COLUMN 7 OF
NSTRAT=1985, 00320
SKIPPING TO NEXT VARIABLE NAME
CMD > X

READY
```

ERROR MESSAGES PRINTED BY DATA PREPARATION PROGRAM

1. XX COMPANIES IN POOL COMPANY LISTS DIMENSIONED XX

   Number of companies in pool exceeds program limit. Number of companies must be $\leq$ 25.

2. ERROR AAAAAA INSTALLED IN XXXX RETIRED IN XXXX

   Check installation year and retirement year of unit AAAAAA.

3. ERROR IN CONV. HYDRO

YEAR	MONTH	MAX. MW	MIN. MW	ENERGY MWH
XXXX	XX	XXX	XX	XXXXXX

   Check conventional hydro. Cumulative totals for hydro in year XXXX, month XX are not within bounds:

$$\text{Min. MW} \times \text{Hours} < \text{Energy MWh} < \text{Max. MW} \times \text{Hours}$$

4. ERROR - COMPANY IS ZERO

   Company identification of unit is zero. Check manual additions.

5. ERROR IN GENERATION RETRIEVAL DATA

   Generation Model file has a data error or some missing data. Create new Generation Model file.

6. ERROR - STUDY YEAR = XXXX FIRST YEAR ON LOAD MODEL TAPE = XXXX

   First year to be studied by Generation Planning Program is earlier than first year of Load Model; or $INPUT is missing.

7. ERROR - TOO MANY UNITS

   Number of units in present and future system exceeds program limits. Total number must be $\leq$ 250.

8. ERROR - TYPE IS ZERO

   Type of unit, i.e., 1 through 10, is zero. Check Generation Model and manual additions.

ERROR MESSAGES PRINTED BY DATA PREPARATION PROGRAM (Continued)

9. PROGRAM HALT - MORE THAN XX UNITS ADDED AND RETIRED IN YEAR XXXX

   Sum of unit additions and retirements exceeds program limits. Sum must be $\leq$ 100.

10. PROGRAM HALT - MORE THAN XX NUCLEAR UNITS

    Number of nuclear units exceeded program limits. Total number must be $\leq$ 100.

11. DOUBLE COMMAS DETECTED IN INPUT DATA - CASE TERMINATED

    Two consecutive commas or two consecutive commas separated by a blank is invalid.

ERROR MESSAGES PRINTED BY GENERATION PLANNING PROGRAM

1. ERROR IN NAMELIST DATA
   CHECK FOR MISSPELLED OR INCORRECTLY DIMENSIONED VARIABLES

   Use BEDIT to scan Report 06 for NAMELIST error messages. Reply to CMD query is PE.

2. ERROR IN DATA PREPARATION PROGRAM
   CHECK OUTPUT FROM DATA PREPARATION PROGRAM FOR ERRORS

   Check Report 07, Data Preparation Program for error message. Scan Report 06, Data Preparation Program for NAMELIST errors.

3. PROGRAM TRIED TO READ NAMELIST DATA - NONE AVAILABLE
   CHECK DATA FOR MISSING $INPUT OR ENDING $

   Review Foreground data file. Must include $INPUT and ending $.

4. YEARLY OVERRIDES INDICATED BEFORE START OF STUDY
   CHECK DATA FOR IYREADS LT NSTART - INCLUDE IN GENERAL DATA

   Review Foreground file. IYREAD input to general data of Generation Planning Program must be equal to or greater than NSTART, first year of OGP study.

5. A SYSTEM ERROR HAS OCCURRED
   CHECK HARD COPY OUTPUT FOR ERROR MESSAGE

   Scan Report 06 for "EXPONENTIAL" or "DIVIDE" or "TRACE." Message, including location of error, will be printed. Please call OGP personnel in Schenectady for diagnosis of message.

6. NTOTAL OF DATA PREP LT NTOTAL USED IN GENERATION PLANNING
   INCREASE NTOTAL IN DATA PREP INPUT (MAXIMUM OF 30 YEARS)

   Check NTOTAL of Data Preparation Program. Change NTOTAL of Generation Planning Program to be less than or equal to NTOTAL of Data Preparation Program.

7. DATA ERROR - NO ZEROS FOUND IN KOPT LIST
   CHECK VARIABLE KOPT - MUST HAVE AT LEAST ONE ZERO ENTRY

   Review KOPT input. Program requires at least one type to be available for optimization even if FAIL=1 (manual expansion).

ERROR MESSAGES PRINTED BY GENERATION PLANNING PROGRAM (Continued)

8. TOO MUCH HYDRO ENERGY AND/OR INVALID LOADS
   DECREASE AVAILABLE HYDRO AND/OR CHECK LOAD MODEL

   Review conventional hydro data. Also review off-peak hourly loads.

9. ERROR IN SHAVING LOADS FOR RELENG CALCULATIONS
   TOO MUCH ENERGY AVAILABLE

   Review energy data associated with conventional hydro.

10. THERMAL UNIT IS MISSING KIND DATA
    CHECK SYSTEM CHARACTERISTICS OR ANNUAL OVERRIDES

    Type of unit was not defined. Check Data Preparation Program for zero in type identification. Especially check units added manually.

11. (ERROR MESSAGE 11 NOT USED IN OGP-6)

12. PROBABILITY OR XTABLE EXCEEDED
    INCREASE STEP SIZE (STEP) OR VALUE OF MINIMUM ENTRY (PRBMIN)

    Maximum number of entries in probability table is 2500.

13. TOO MANY UNITS IN SYSTEM
    INCREASE SIZE OF LUMPED UNITS AND/OR AUTOMATIC ADDITIONS

    Number of units on system may not exceed 250.

14. SYSTEM TOO SMALL FOR VALID RELIABILITY CALCULATIONS
    INPUT KODE(7)=1, PRGOAL=DESIRED PERCENT RESERVE GOAL

    Probability table is too short for valid calculations. Input KODE(7)=1 to bypass probability calculations. If optimizing, must also input PRGOAL.

15. NO. OF PASSES THRU LOLP CALCULATIONS HAS EXCEEDED LIMIT
    REVIEW VALUE OF KRMAX (INIT. TO 20) AND SUMMARY 1

    Check MONAUT; month of installation of automatic units. Units must be installed prior to month in which peak load occurred. Also check size of automatically added units.

ERROR MESSAGES PRINTED BY GENERATION PLANNING PROGRAM (Continued)

16. ERROR IN ENERGY STORAGE RELIABILITY CALCULATIONS
UNABLE TO EQUALIZE PUMP AND GENERATE

Review data associated with energy storage units.

17. UNITS TO BE ADDED AUTOMATICALLY ARE NOT IDENTIFIED
CHECK KOPT LIST, MANFYR, XSIZES AND/OR AUTOMATIC ES UNITS

Review shopping list of units to be added automatically. These are input to the Data Preparation Program. The years that different unit types become available must be consistent with the KOPT input.

18. ADDING ADDITIONAL UNITS DOES NOT REDUCE RISK
CHECK F.O.R. ON THERMAL UNITS AND MONTH ADDING AUTO UNITS

Review forced outage rates of units available for automatic addition. Also review MONAUT, month of installation of automatic units. If the new units are installed too late in the year, they may not be available during enough of the year to significantly reduce the risk or to contribute to the installed percent reserves at time of peak.

19. SUM OF UNIT ADDITIONS AND RETIREMENTS EXCEED PROGRAM LIMITS
INCREASE SIZE OF AVAILABLE AUTOMATIC UNITS

Number of units added/retired each year may not exceed 100.

20. ERROR IN SITING LOGIC - ALL COMPANIES EXCEED RESERVE LIMIT
COMPANIES WITH CAPACITY MUST ALSO HAVE LOADS

Review KCODB input data to the Generation Model Program and the Data Preparation Program. Also review company data on the Load Model. Each company that has capacity must also have loads assigned to it.

21. SUM OF MINIMUM LOADING UNITS COMMITTED IS GREATER THAN LOAD
REDUCE MIN. RATING OF UNITS OR SELL EXCESS (EXMXPU)

Review minimum ratings of units. If ratings are correct, program will have to sell excess energy. Therefore, input EXMXPU and related data.

ERROR MESSAGES PRINTED BY GENERATION PLANNING PROGRAM (Continued)

22. LOOPING IN PUMPLINE CALCULATIONS - ENERGY STORAGE CALCULATIONS
CHECK HARD COPY OUTPUT FOR DEBUGGING INFORMATION

Problem with energy storage calculations.
Please call OGP personnel in Schenectady.

23. PUMP AND GENLINES NOT MOVING - ENERGY STORAGE CALCULATIONS
CHECK HARD COPY OUTPUT FOR DEBUGGING INFORMATION

Problem with energy storage calculations.
Please call OGP personnel in Schenectady.

24. COMPUTED CYCLING EFFICIENCY DOES NOT MATCH INPUT EFFICIENCY
COMPARISON EXCEEDS ALLOWED TOLERANCE

Problem with energy storage calculations.
Please call OGP personnel in Schenectady.

25. TOO MANY ITERATIONS IN ENERGY STORAGE CALCULATIONS
CHECK HARD COPY OUTPUT FOR DEBUGGING INFORMATION

Problem with energy storage calculations.
Please call OGP personnel in Schenectady.

26. RANDOM FOR - MIN. RATINGS OF UNITS BEYOND COMMITMENT TOO HIGH
REDUCE MINIMUM RATINGS OF UNITS

Too much energy committed in random FOR calculations. Reduce minimum ratings of units.
Please call OGP personnel in Schenectady.

27. NTOTAL=0
REVIEW INPUT DATA, GENERATION PLANNING

Review general data of Generation Planning Program. May not input NTOTAL=0.

28. END OF FILE READING MAINTENANCE FILE 14
REVIEW LMAINT AND FAIL INPUT DATA, AND FILE 14 JCL

Study parameters such as first year of study, type of run, units added, etc., do not agree with data of the case in which the maintenance schedule was saved on File 14.

ERROR MESSAGES PRINTED BY GENERATION PLANNING PROGRAM (Continued)

29. ERROR - DATA PREP FILE 03 NOT COMPATIBLE WITH GEN PLNG PRGM
CHECK TRANSFER FILE 03

File 03 input to Generation Planning Program was written by OGP-5. Rerun using OGP-6 version of Data Preparation Program.

30. ERROR - FORCED OR PLANNED OUTAGE RATE DATA INVALID
REVIEW GENERAL AND ANNUAL OVERRIDE DATA AND RESUBMIT

Planned or forced outage rates of units greater than 1.0. Outage rates must be less than or equal to 1.0.

31. END OF FILE READING ON FILE 13 ENCOUNTERED
ECONOMIC OVERBUILD LOGIC

Please call OGP personnel in Schenectady.

32. FORMAT OF FILE 14, SAVE MAINTENANCE SCHEDULE, DOES NOT AGREE WITH PROGRAMMED RECORD. PLEASE REVIEW.

Maintenance schedule saved on File 14 is not compatible with current version of program. Please rerun case in which maintenance schedule was saved.