

Oracle Utilities Load Analysis

Cost of Service Interface User Guide

Release 1.11.1.2 for Windows

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Oracle Utilities Load Analysis/Cost of Service Interface User's Guide, Release 1.11.1.2 for Windows

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Chapter 1

Introduction to the Cost of Service Interface System

Welcome to the Oracle Utilities Cost of Service Interface System (COSI). This system has been designed to help you allocate the cost of service among rate classes and subclasses, and to produce a variety of useful reports.

COSI bridges the gap between the Oracle Utilities Load Analysis System and your company's Cost of Service software. It also may be used as a stand-alone system for companies that do not have Oracle Utilities Load Analysis. It will enable you to transform statistical estimates of rate class hourly electric loads to estimates of energy at the generation level by factoring in unexplained sampling error and transmission and distribution losses. You can then apply COSI to develop demand, energy, and customer cost allocation factors for each rate class, and transfer these factors into your Cost of Service software. Since COSI offers several methodologies for allocating demand costs (e.g., Coincident Peak and Noncoincident Peak), you can run the program different ways to quickly determine the cost allocators and then the revenue impact of each approach on the rate classes.

COSI is an easy-to-use tool that is intended for use by load research analysts, rate department personnel, and others involved in allocating costs.

What You Should Know Before Getting Started

This manual describes the features and functions of the Oracle Utilities Load Analysis COSI. It is not intended to teach you the basics of working with your computer or operating system. If you need help with this, contact your facility's system manager.

It will also be helpful if you understand the operation of the Oracle Utilities Load Analysis System. Oracle Utilities Load Analysis provides much of the data that is used as input to the COSI, and many of the programs in the COSI are similar to those in Oracle Utilities Load Analysis. For additional information, see the *Oracle Utilities Load Analysis Load Data User's Guides*.

It is also important to note that there are some differences between the operation of COSI and that of the basic Oracle Utilities Load Analysis System. These differences are highlighted in the text throughout the manual.

How This Manual Is Organized

This manual is divided into three main parts. **Chapter 1: Introduction to the Cost of Service Interface System** through **Chapter 3: COSI Mechanics** provide an overview of COSI's purpose and features, and describe the basics of working with the system. (You will find that **Working With the COSI System** on page 1-7 gives an especially useful overview of the entire process of data development and manipulation.) The remaining chapters (Five through Sixteen) describe a step-by-step procedure for working with the COSI. Each chapter is dedicated to a major task. The manual concludes with a Quick Reference section, where you will find tables of often-used formats and other information.

Conventions Used In This Manual

The formats for creating input files are illustrated in boxes throughout the manual. Within these boxes, the following conventions are used:

- Keywords that you will enter appear in the manual as a combination of upper- and lower-case letters. Typically, you need enter only the first three letters, which appear in upper-case.
- Parameters you will enter appear in italics.
- Braces { } are used to indicate a choice of parameters, from which you must choose one.
- Brackets [] are used to indicate optional parameters which may or may not be specified.
- Vertical bars | separate mutually exclusive choices.
- Default parameter values are indicated by underlines.

How To Get Help...

Occasionally, you may come up against an error message or other problem that you cannot decipher on your own. As a Oracle Utilities customer, you can contact Oracle Support personnel at <https://support.oracle.com>.

My Oracle Support offers you secure, real-time access to Oracle experts on the complete Oracle Utilities Load Analysis system. It also provides ground breaking personalized & proactive support capabilities that help reduce unplanned down time and improve system stability. Leverage the Internet for immediate access to 24/7 support and get the critical and timely information you need for running your business.

Before contacting, please prepare the following information:

- The appropriate job folder that contains the issue.
- Anything else that you think might aid in diagnosing the exact error

What Is a “Cost of Service Study”?

Many utilities use Cost of Service as a method of setting reasonable rates, or of simply analyzing their costs. A cost of service study measures how much it costs the utility to serve each rate class over a specified period of time (usually one year). The emphasis of the study is not to determine the exact dollar figure for a given customer or rate class, but rather to assign a *percentage* of the utility’s total cost to each rate class.

The first step in a cost of service study is to “functionalize” the costs — that is, to break down the total expenditures according to *generation*-, *transmission*-, and *distribution*-related costs.

The next step is to classify the functionalized costs into three categories: *demand*, *energy*, and *customer*. The exact definitions may be somewhat different at your utility or company, but in general:

- **Demand costs** vary in proportion to the level of demand placed on the system, usually at system peak. Most generation, transmission and distribution, and plant investments are assigned to this category.
- **Energy costs** vary with the number of kilowatt hours produced. Fuel burned, gas purchased, and sometimes purchased power costs are assigned to this category.
- **Customer costs** usually vary in proportion to the number of customers served. The costs for establishing basic service to a customer, as well as metering, accounting, and billing costs are put in this category.

Once the costs have been functionalized and classified, they can then be allocated to customer classes. A customer class may be an individual customer, a rate class, or rates from a specific jurisdiction. Allocation of demand costs is the most controversial, and may be handled in different ways; for example:

- **Coincident Peak Method** — Each class is assigned a portion of the demand costs, according to its contribution to the annual system peak. With this approach, a class with only off-peak demand would not receive any of the demand-related costs.
- **Non-Coincident Peak Method** — Rate classes are allocated a portion of the demand costs according to their individual peak, regardless of when it occurs in relation to the system peak.
- **Average and Excess Method** — Demand-related costs are separated into average and maximum (excess) costs. The maximum portion is allocated to the classes according to their relative contribution to the sum of excess demands. The average portion is allocated according to their relative contribution to energy.

Allocation of energy and customer costs is more straightforward. Energy costs are a function of the number of kilowatt hours produced and can be allocated to the classes based on the kilowatt hours consumed by each class. Customer costs may be allocated to the rate classes based on the total demand and the number of customers in each class.

How Does COSI Fit In?

COSI provides much of the essential data and computations that form the basis for a cost of service study. It is the link between load research analysis surveys and the final cost of service calculations.

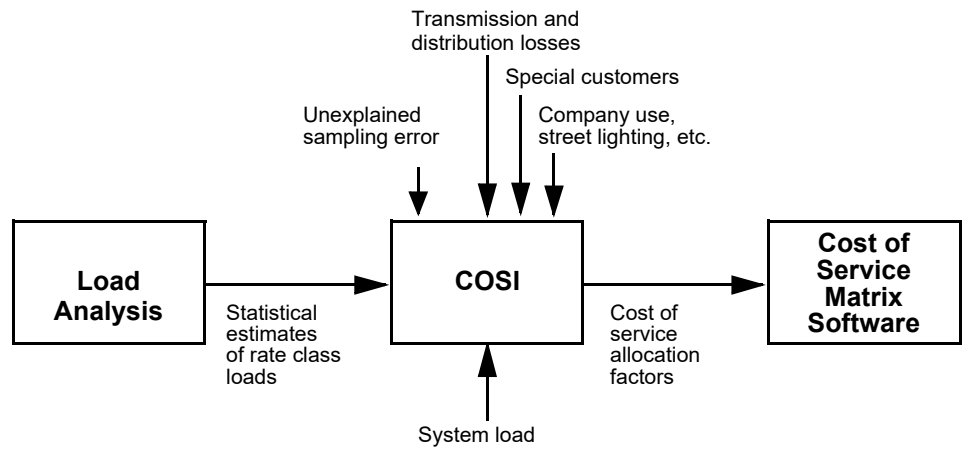


Figure 1-1 **The COSI Link**

COSI is the link between Oracle Utilities Load Analysis and your Cost of Service Software Module

Using load research studies, the Oracle Utilities Load Analysis System provides statistical estimates of the hourly demand for each rate class. However, the cost of service study must account for all energy actually generated by the system — unexplained sampling error, transmission and distribution losses, as well as other generated energy (such as company-use and street lighting) must still be accounted for. That’s one of the things that COSI does — based on parameters you define, it fairly allocates the additional energy to each rate class. In other words, COSI expands statistical estimates of hourly loads to generation-level loads for each rate class.

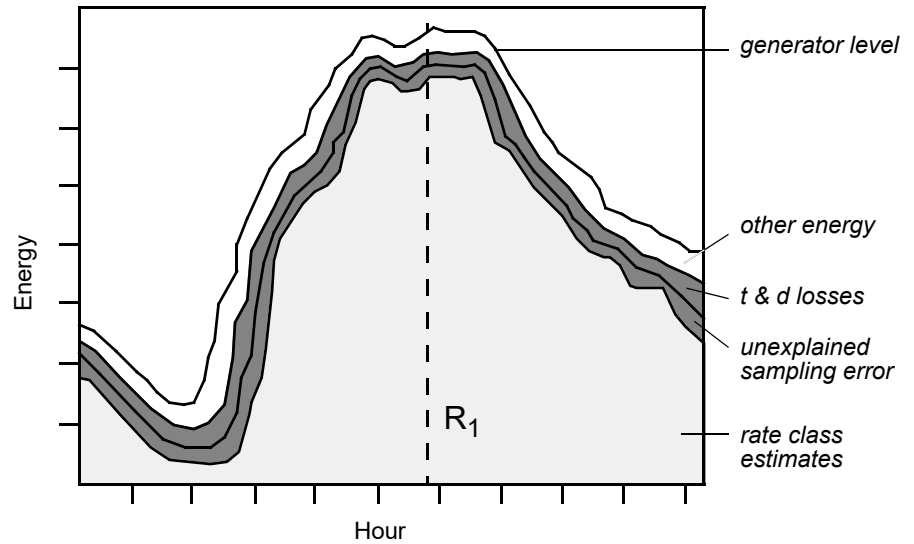


Figure 1-2 **How COSI Works**

For each rate class, COSI expands statistical estimates of hourly loads to generator level by adding the unexplained sampling error, transmission and distribution losses, and other energy.

Once it is known how each rate class contributes to the system load on an hourly basis (and therefore to system and class peaks), COSI can then compute demand allocation factors using the methods described above (i.e., Coincident Peak Method, Non-Coincident Peak Method, etc.).

COSI can also compute energy and customer allocation factors. These allocation factors can then be fed into a Cost of Service accounting software.

How Is COSI Structured?

The COSI consists of a series of programs and databases designed to enable you to perform the steps necessary to compute cost of service allocators, as well as get data into and out of the system, generate useful reports, and perform routine data “housekeeping” tasks. COSI has two databases:

- **Generator Level Database (GLDB)** is the on-line “working” database containing the data created by the COSI programs. It is a “double precision database,” which means that it can store very large values for greater accuracy.

The diagram below illustrates the structure of the COSI system. The following pages explain how you work with these programs.

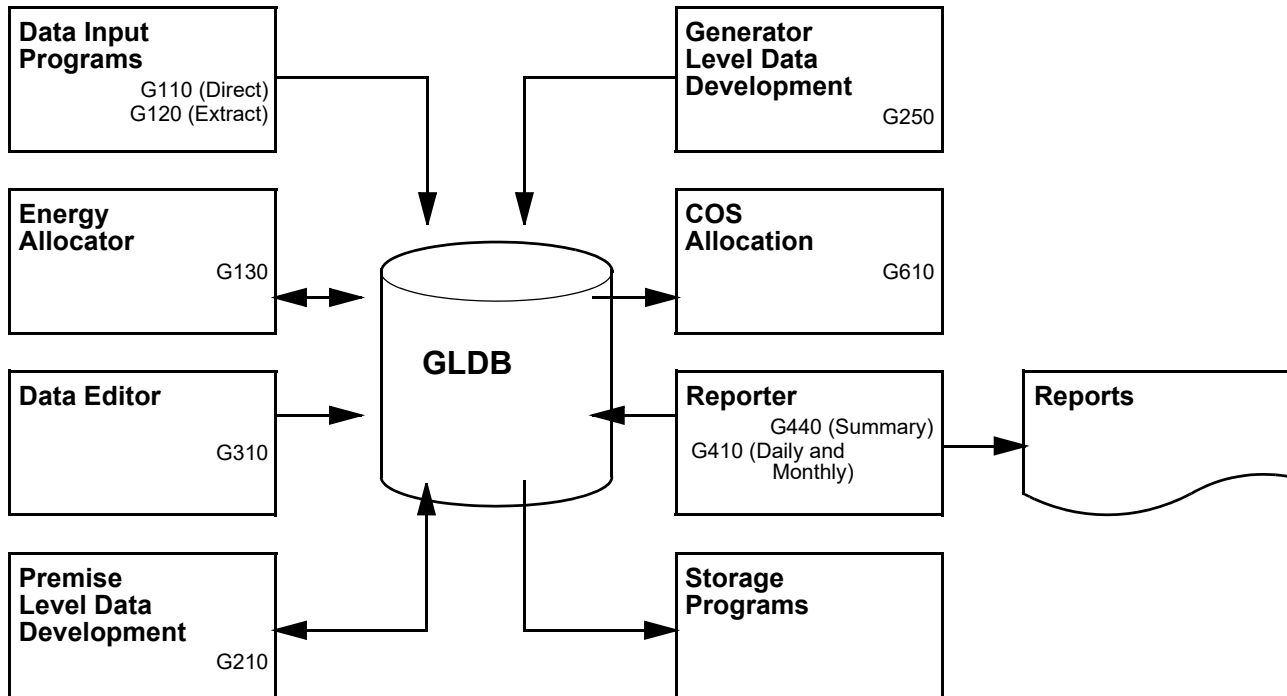


Figure 1-3 Structure of the COSI System

Working With the COSI System

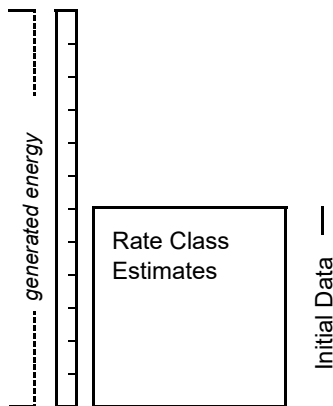
What Steps Do You Follow?

The following paragraphs briefly explain the steps required to develop cost of service allocation factors using the COSI. The rest of the manual describes the procedures in detail.

A basic objective of the COSI system is to allocate all generated energy — for each hour of a given period — among the rate classes (in other words, to account for all generated energy). You will expand statistical estimates of rate class loads to generator-level hourly loads through a sequence of steps by adding and manipulating data. The basis for this process is the formula:

$$\text{Generated Energy} = \left(\sum \text{Rate Class Loads} \right) + \text{Unexplained Sampling Error} + \text{Transmission \& Distribution Losses}$$

Step 1: Input Data

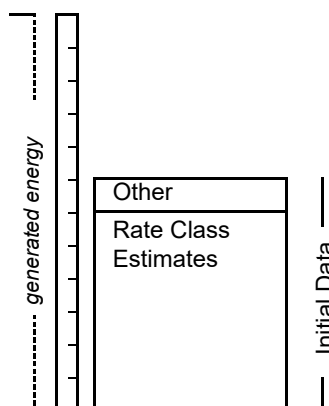


In this step you will form the foundation for the rest of the process by inputting known data into the Generator Level Database (GLDB), the COSI “working” database. You will input the System (generator) load, rate class or sub-class load estimates from Oracle Utilities Load Analysis, and load data for special customers who may form their own rate class (these customers are identified separately because they may not receive a portion of sampling error later in the process).

Because this data can come from several sources and exist in different formats, you will use two programs for data conversion and input: the **Data Extraction Program** which takes data from the Oracle Utilities Load Analysis SLDB or ELDB, and the **Direct /Production Input Program** which accepts data from sources outside of Oracle Utilities Load Analysis in both LSE or INP format.

The data you input to the GLDB in Step 1 is called “**Initial Level Data.**”

Step 2: Allocate Energy



In this step you will use the **Energy Allocator Program** to break down “lump-sum” energy values for non-surveyed loads (such as street lighting and company use) into hourly loads. You are thus creating a cut in the GLDB of demand in 60-minute intervals for each one of these classes.

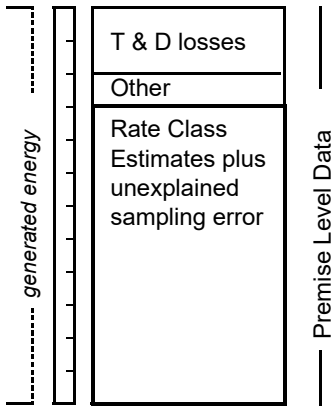
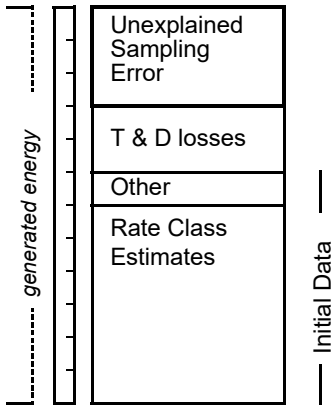
You then have the option of treating these loads as rate classes or regular cuts, giving them a share of the sampling error and transmission and distribution losses, or, you may later allocate their energy use to other rate classes. These cuts may be used in transformations (Y620) and other useful procedures where you may select a GLDB as the tableset or “database”.

Step 3: Allocate Unexplained Sampling Error

In this step, you will enter the loss value (calculated outside of COSI) at the hour of the system peak. This loss/peak ratio will be used to estimate the rest of the losses for each hour.

Then, you will determine the total amount of unexplained sampling error by subtracting the sum of the transmission and distribution losses plus the rate class energy values from the total System load.

You will then allocate the result among the rate classes and sub-class groups (except the special customers, whose exact energy use is known). The result is called the **“Premise-Level Data.”** You will use the **Premise Level Data Development Program** for this step.



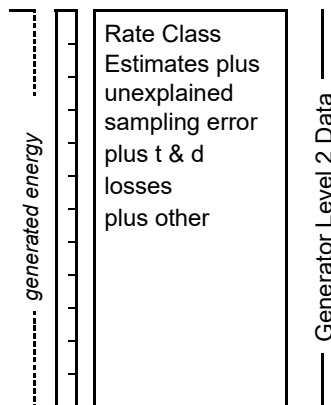
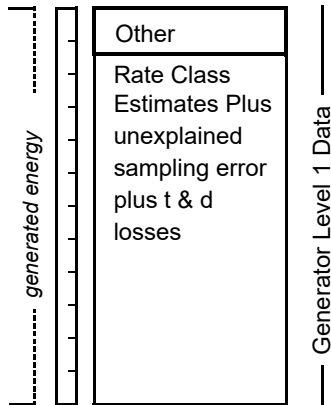
Step 4: Allocate Transmission and Distribution Losses

Now you will allocate the remaining energy (transmission and distribution losses, company use, etc.) to the rate classes, sub-class groups, and customers. This is done in two steps, using the **Generator Level Data Development Program**:

First, you will allocate the transmission and distribution losses to each rate class. The result is called “**Generator Level 1 Data.**”

Second, you will allocate to the rate classes any remaining energy or un-billable loads — for example, company use. The result is called “**Generator Level 2 Data.**”

You now have all the information you need to develop Cost of Service allocation factors.



Step 5: Develop Cost of Service Allocation Factors

Finally, you will create the cost allocation factors (percent of total use) for each rate class in three different categories. Cost allocation factors will be created for customer, demand, and energy related costs. This is done by using the **Cost Allocation Program**.

Chapter 2

The COSI Data Format

Much of your work with COSI will involve collecting data from a variety of sources, converting it to the LSE format, and inputting it to the GLDB.

Before describing the specific procedures for working with the programs, we'll now take a look at the data elements used by COSI — with particular attention to the differences between COSI cut storage formats and those used in Oracle Utilities Load Analysis LAS and LDM.

Cuts, Cut Series, and Cut Keys

As in Load Analysis LDM and LAS system, the COSI databases store cuts and cut series. In general, a cut is a record of data for a rate class, sub-class group, special customer, or the System covering a single time period (usually a month). It includes load data (energy values for each hour) and descriptive information. A **cut series** is a collection of cuts for a single rate class, sub-class group, special customer, or the System covering several time periods.

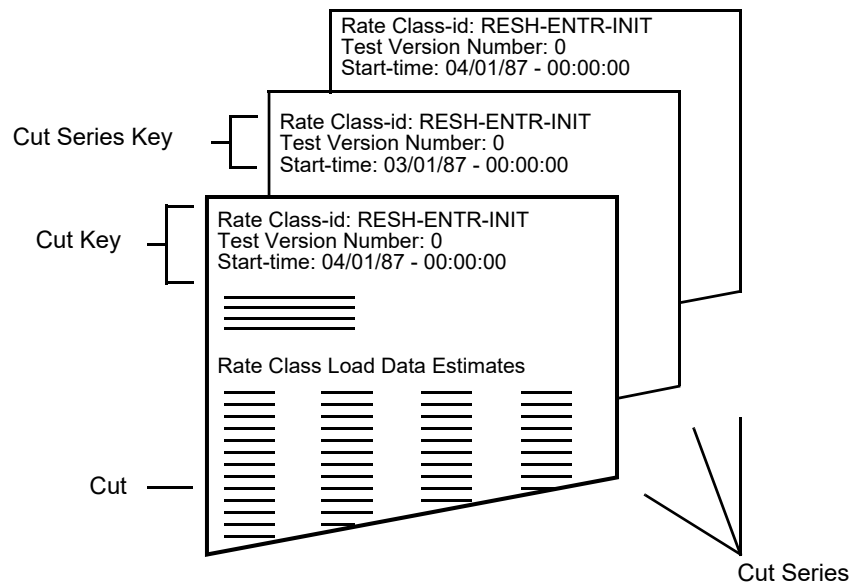


Figure 2-1 Cut, Cut Series, and Cut Keys

A cut is a record for a rate class, sub-class group, customer, or the System for a specified time period. A cut series is a collection of cuts for a single rate class, customer, or the System over several time periods.

The cut identifier (that is, what information you use to identify a specific cut to the computer) is called the **cut key**. It consists of the “rate-class-id,” “version-number,” and “start-time.” (These terms are described on the following pages.)

The identifier for a cut series is, not surprisingly, called the **cut series key**, and consists of the “rate-class-id,” and “version-number.”

The GLDB usually contains cuts for the most recent analysis period.

Major Data Elements

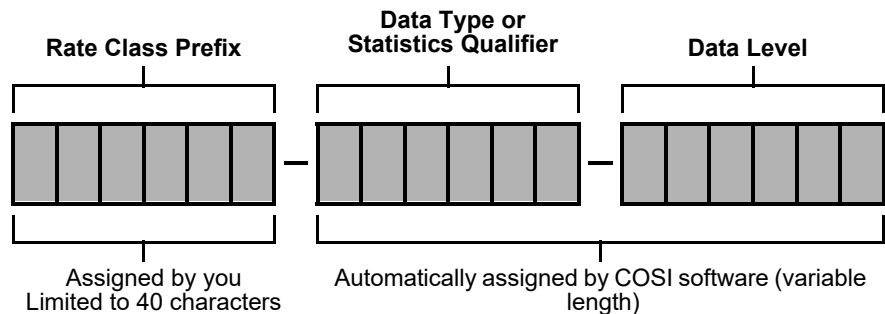
Below is a sample representation of a COSI record or cut. Each element of the cut is described in detail on the following pages.

Rate-class-id: RESH-ENTR-INIT			
Version-number: 0			
Start-time: 04/01/87-00:00:00			
Stop-time: 04/30/87-23:59:59			
UOM: KW			
Descriptor: Residential with electric space heating			
Seconds per interval: 3600			
Rate Class Load Data Estimates:			
443135.00	427263.00	448790.00	426545.00
473987.00	533987.00	683876.00	612456.00
534213.00	429876.00	401543.00	382876.00
351432.00	321321.00	267876.00	290987.00
337654.00	445321.00	560543.00	542657.00
466980.00	384876.00	322134.00	300999.00
351098.00	353654.00	357000.00	346765.00
490987.00	445332.00	568768.00	542876.00
475768.00	454321.00	407989.00	332456.00
276984.00	259899.00		

Figure 2-2 Sample Representation of a COSI Cut

This is an example cut after data input and conversion.

- **Rate-class-id** takes the place of Oracle Utilities Load Analysis’s Customer-id. It is a unique identifier with the following format:



- *Rate-class-prefix* denotes the System, a particular rate class, sub-class, or customer. You assign the rate-class-prefix during data input. Note that it is limited to 40 characters. If you attempt to use a longer identifier — or if you do not translate customer-ids to a 40-position identifier, the program will automatically delete any characters after the 40th position. Also, when assigning the rate-class-prefix, do NOT use any of the following characters because they have special meaning to the COSI system: hyphens (-), slashes (/), and colons (:).

The remaining characters in the rate class prefix are automatically assigned by the COSI, and represent the various types and stages of the data's development.

- *Data type* tells you whether the data is actual energy values for an entire period from start to stop, or statistical data. The code ENTR means actual energy values for an entire period. The statistic qualifiers are as follows:

CODE	DEFINITION	EXPLANATION
CD	Class Maximum Coincident Demand	Demand coincident with the Class maximum
HWN	Average Holiday and Weekend	Average Holiday and Weekend for a date range
MCD	Class Minimum Coincident Demand	Demand coincident with the Class minimum
MNCD	Minimum Group Demand	The group hourly minimum
NCD	Maximum Group Demand	The group hourly maximum
NGY	Energy	Total energy of date range
SCD	Coincident Demand	Demand coincident with the System peak
SMCD	Minimum Coincident Demand	Demand coincident with the System minimum
WD	Average Weekday	Average Weekday for date range
WN	Average Weekend	Average Weekend for date range

Where a group is a component (sub-class) of a class.

- *Data level* identifies the data development stage, and will be one of the following:

CODE	DEFINITION	EXPLANATION
INIT	Initial level data	Data input to the system, no modification
PRMS	Premise level data	Rate class or sub-class group loads with sampling error allocated
ERR	Sampling error	Sampling error for a sub-class group or rate class
GNR1	Generator level data 1	Rate class or sub-class group loads with sampling error and T&D losses allocated
GNR2	Generator level data 2	Rate class or sub-class group loads with sampling error, T&D losses, and company use allocated
LOSS	T&D losses	T&D losses for a rate class or a sub-class group

CODE	DEFINITION	EXPLANATION
VLOS	System or voltage level variable loss	System or voltage level record
TLOS	System or voltage level total loss	System or voltage level record

- **Version-number** replaces Oracle Utilities Load Analysis’s channel number. During later stages of the COSI system’s use, you will apply different cost allocation criteria to the data, in order to test alternative methodologies. The version-number will enable you to identify and keep separate the results of the various approaches.

The version-number is a single digit (0 to 32760). The default value is “0”; and COSI automatically gives all data a “0” when you first enter it into the GLDB. Therefore, if you input a series of customer data with different channel numbers, COSI will automatically override them, changing them to “0”. This is very important to keep in mind when you are extracting data from the Oracle Utilities Load Analysis ELDB, and the channel number has been used to identify different strata. In that case, you should rename each strata with a unique 40 character rate-class-prefix. The Auxiliary Database (AXDB) can help you quickly change the statistic names at input time.

- **Start-time and stop-time** are the same as in Oracle Utilities Load Analysis. Each recording period for the class load estimates is bounded by a start date/time (abbreviated as “start-time”) and a stop date/time (abbreviated as “stop-time”). A start-time or stop-time may have the following format (These will follow your locale settings):

mm/dd/yy-hh:mm:ss or mmdyyhhmmss

where

- mm = a 2-digit month
- dd = a 2-digit day
- yy = a 2-digit year
- hh = a 2-digit hour
- mm = a 2-digit minute
- ss = a 2-digit second

subject to the following restrictions:

$01 \leq mm \leq 12$

$01 \leq dd \leq \text{number of days in the respective month}$

$(19)67 \leq yy \leq (20)55$

$00 \leq hh \leq 23$

$00 \leq mm \leq 59$

$00 \leq ss \leq 59$

The time 24:00:00 is not allowed.

- **UOM** stands for “Unit of Measure”. Unlike Oracle Utilities Load Analysis, which stores many types of load measurements, COSI stores only kilowatts. If the load data you are inputting to the COSI is in megawatts, or gigawatts, the program will automatically convert it to kilowatts.
- **Descriptor** is a phrase which you can add during data input to further identify the subject of the record — i.e., a rate class, sub-class group, or customer. For instance, in Figure 2-2, the sub-class group “RESH” gets the descriptor ‘Residential with electric space heating’. You can

use up to 80 characters in this field. (Populating this field with meaningful queryable descriptive fields will assist you with Queries during the process to form groups of cuts.)

- **Seconds per interval** denotes the number seconds for each load measurement in the “Rate Class Load Data Estimates” field (see definition of this field below). Unlike Oracle Utilities Load Analysis, which will accept any number of seconds per interval, COSI works only with energy measured in 60-minute intervals. For that reason, this field is always set to “3600”. If the data you are inputting into COSI is measured at other intervals, the program will automatically convert it to hourly data and set the field to “3600”.
- **Rate Class Load Data Estimates** are a series of values which express the load — for a rate class, sub-class group, special customer, or the System — measured in kilowatts at hourly intervals. As explained above, COSI will automatically convert loads that have been measured in different units or at different intervals to this format.

These are the intervals and status codes in the cuts of data in your GLDB.

Chapter 3

COSI Mechanics

Before you actually begin to work with COSI, you might want to review some of the basics of working with the programs.

You accomplish tasks by submitting procedures that run programs. Each program requires input files and produces output files. Output files may be used as the final result (reports, for example), or become input for other programs.

Another way of looking at this is that you can accomplish the tasks by following three main steps:

1. Creating Input Files
2. Running the Program
3. Checking Output Files.

In the remaining chapters of the manual, programs are described in terms of the input files you must create, what the programs do with your input, and the resulting output files.

What Input Files are Used In COSI?

COSI programs (like Oracle Utilities programs) use three types of input files: *Control Files*, *Environment Files*, and (optionally) *an Auxiliary Database*.

- **The Control File** typically contains the data to be processed. Customer lists, rate lists, and lists of keys for load data records are common kinds of control files.
- **The Environment File** contains your processing instructions to the program. Typically you select among a set of optional parameters to define the file.
- **The Auxiliary Database** provides you greater flexibility for defining how you want incoming data to be processed.

Some programs also use one or more of the following files: **Time of Use File**, **Holiday File**, **Rate File**, and/or **Title File**.

What Output Files Does COSI Produce?

Output — the result of running a program — can be new or modified data entered into a database, or reports. Many of these reports are designed to help you evaluate the success of the program run:

- **The Environment Report** describes the processing mode in effect during the program run. Use this report to verify that you entered the correct commands and parameters in the Environment File.
- **The Execution Log** typically lists data that was altered or created during the program run; it often includes diagnostic messages which alert you to any problems with the input data or the run.
- **The Summary** usually provides counts of records entered or modified in the database as a result of the run.

Naming Conventions in COSI

Elements of the COSI program are identified by a consistent set of naming conventions. Being able to recognize procedures and files by this naming convention will be a big help to you in working with COSI. The conventions are as follows:

Table 1: Naming Conventions

ELEMENT	CONVENTION	EXAMPLE
Program Names	TGG ...	Direct input program name = TGX110
Control Files	TGG ... A	Direct input control file = TGG11A
Environment Files	TGG ... B	Direct input environment file = TGG11B

Chapter 4

Setting Up

In preparation for working with COSI, you will need to create a group of input files that will be used by several of the COSI programs. Typically, you will create these files once at system setup, and modify them only occasionally. Below are these required files:

- **Rate File** — identifies and describes each rate class, sub-class group, and customer to be analyzed and reported by COSI. **Note:** you must include the system record in the Rate File. This record identifies and describes the system load.
- **Holiday File** — identical to the Oracle Utilities Load Analysis Holiday File.
- **Time-of-Use File** — identical to the Oracle Utilities Load Analysis Time-of-Use File.

Instructions for setting up the Rate File are provided on the following pages. See the *Oracle Utilities Load Analysis Load Data Management User's Guide* for information about the Holiday and Time-of-Use files. In fact, you may be able to simply use your utility's existing files.

How To Create the Rate File (TGG21C)

In constructing the Rate File, you may begin by entering three commands establishing the upper limits for the number of rate classes, sub-totals, and loss groups that it may contain. Then you first enter two commands that define how information will be reported (specifically, the unit of measure and number of decimal places you want reported). Then you must create records each for the System total, loss, and error, as well as one for each special customer, rate class, and sub-class group you want to analyze and report.

Enter the records for the System, loss, and error, as well as for each rate class, sub-class group, and special customer in the order you want them to appear in reports. For example, if you want a sub-total (class) made up of a set of sub-class groups to appear after the list of individual sub-class groups, enter the sub-total record immediately after the sub-class group records.

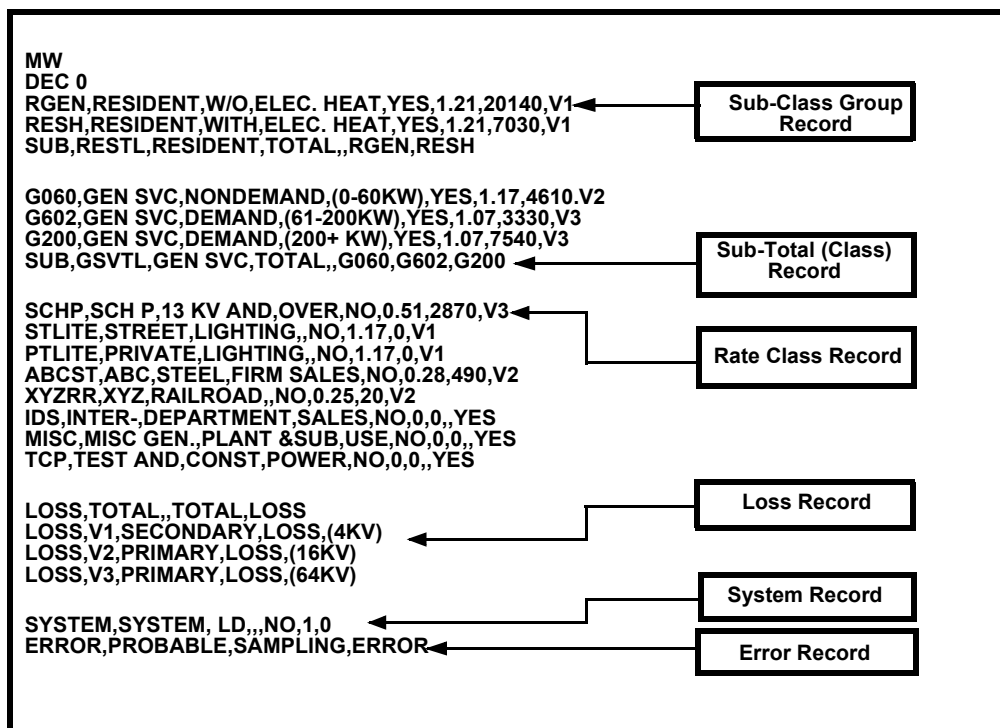


Figure 4-1 A Sample Rate File

Sample reports using this file are shown in **Chapter 14: Creating Output Files using the Direct Output Program**.

When creating the Rate File, enter one record per line. Within each record, you must enter the fields in the order given (see record formats on the following pages). Separate individual fields with a comma (the records are not column dependent). You can, if you wish, enhance the visual appearance of the File by adding blank spaces and lines — blanks are ignored by the program, except within the descriptor fields.

If you choose to leave an optional field blank, or if you want to use a default value, simply enter a space surrounded by commas for that field. If the field or fields fall at the end of the record, you don't have to enter the commas. In other words, if you want to skip a field (to ignore an optional parameter or to use a default value) but you have entries for the following fields in that record, you must still indicate the position of that field by entering a comma. If you have no entries following that field, the commas are unnecessary.

Three optional maximum-limits commands, two report format commands and four record formats are used to create the Rate File. The record formats are:

- **Rate Class/Sub-Class Group Record**
- **Sub-Total Record**
- **System Record**
- **Loss and Error Records.**
- **Maximum Limits Commands**

Use these three commands if you need to increase the maximum number of rate classes, group sub-totals, or loss records that may be contained in the Rate File. If used, these commands must precede all others in the Rate File. Note: the commands only establish upper limits; your Rate File does not have to reach them. Processing a very large number of rate classes increases the memory required to run some COSI programs.

MAXRATES	n
MAXSUBS	n
MAXLOSS	n

- *MAXRATES* — Specify the maximum number of rate class/sub-class groups that you might define in the Rate File. If you use this command, you must enter a number greater than 0; if you do not enter the command, this maximum defaults to 99. There is no restriction on the number you can enter.
 - *MAXSUBS* — Specify the maximum number of group sub-totals that you might define in the Rate File. If you use this command, you must enter a number greater than 0; if you do not enter the command, this maximum defaults to 25. There is no restriction on the number you can enter.
 - *MAXLOSS* — Specify the maximum number of loss records that you might enter in the Rate File. If you use this command, you must enter a number greater than 0; if you do not enter the command, this maximum defaults to 10. There is no restriction on the number you can enter.
- **Report Format Commands**

Use these two commands to specify the level of accuracy to which you want information presented in reports (see **Chapter 14: Creating Output Files using the Direct Output Program** for more information on reports).

[MW KW]
DEC [n 0]

- *KW/MW* — Identify the accuracy to which you want energy values reported. The default is KW. The data will be stored in the database at this level of accuracy.
 - *Decimal number* — Specify the number of decimal places you want used in reports. This feature is designed to avoid rounding problems. The default value is “0”.
- **The Rate Class/Sub-Class Group Record Format**

rate-class-prefix, descriptor1, descriptor2, descriptor3, allocate error flag, weight factor, fixed loss amount, voltage level prefix, folding flag
--

- *Rate-class-prefix* — Enter the rate-class-prefix for the record (this field cannot exceed 40 characters). The rate-class-prefix will be used at all levels of data development.
- *Descriptors 1, 2, and 3* — These 3 fields are used by COSI to create column titles in reports. In reports, COSI will print one field per line. For example, the entry: “RESIDENT, W/O, ELEC. HEAT” will appear in reports as:

**RESIDENT
W/O
ELEC. HEAT**

- *Allocate Error Flag* — Enter YES or NO, depending upon whether or not you want the class or customer to receive a portion of the unexplained sampling error. For example, you would likely enter NO for a special industrial customer, since its actual energy load is known. Note: you must assign a YES to at least one rate class or customer (in other words, you must specify at least one record to receive the unexplained sampling error).
- *Weight Factor* — Enter the weight factor, which will determine the amount of the variable transmission and distribution losses to be assigned to the rate class or customer. The

weight factor allows you to assign losses to different rate classes based on their voltage level. (See Generator Loss calculations in **Chapter 12: Developing Cost Allocation Factors** to see how the weight factor is used in the program).

- *Fixed Loss Amount* — This is an optional field — use it only if you are using the Fixed/Variable Method of allocating transmission and distribution losses to the rate classes. Enter the fixed hourly amount of T&D losses in KW the class should receive. Each class will receive a fixed amount and a variable amount.
 - *Voltage Level Prefix* — Enter a voltage level prefix (up to 40 characters). This field is required if a weight factor and/or fixed loss amount with value other than zero is entered.
 - *Folding Flag* — Enter YES or NO, depending on whether or not the energy for this rate class should be combined into the other classes (in other words, allocated into their hourly loads) during Generation Level Data Development. This might typically be done for “company use.” The default value for this field is NO. Note: entering FOLD will have the same effect as entering YES.
- **Group Sub-Total Format**

SUB, class-prefix, descriptor1, descriptor2, descriptor3, rate-class-prefix1, ...rate-class-prefixN [NOStatistics] [+]

- *SUB* — At the beginning of each sub-total record, you must enter SUB to signal the type of record.
- *Class-prefix* — Enter a prefix to be used as the subtotals’ rate-class-prefix. This field may not exceed 6 characters.
- *Descriptors 1, 2, and 3* — These three fields are used by COSI to create column titles in reports, one field per line.
- *Rate-class-prefix* — Enter the rate-class-prefixes for all classes, sub-class groups, and customers you want included in the subtotal. Note: the ids must have their own records elsewhere in the Rate File. You can enter up to 50 rate-class-prefixes in this field.
- *NOStatistics* — Use this command if you want the sub-total to be reported only, in other words, no statistics for the class will be written to the database, and the sub-total will not be considered to be a class. **If this command is not used, all rate-class-prefixes specified here will be considered to be sub-class-groups of the class.**
- *+(plus sign)* — End the subtotal record with a plus sign if you want to continue onto an additional Rate File record with more rate-class-prefixes to be included in the subtotal. The plus sign must be the last nonblank character on the sub-total record, and must be immediately preceded by at least one blank or comma.

If you have multiple jurisdictions, create a subtotal for each jurisdiction. Then you will get statistical information based on jurisdiction. For example, assume there is a residential sub-class group in jurisdiction one (RES1J1) and a residential sub-class group in jurisdiction two (RES2J2). Lets also assume there is an industrial sub-class group in jurisdiction one (IND1) and a commercial sub-class group in jurisdiction two (COMM2). Create a subtotal for the residential classes. This will give you total residential information.

```
SUB RESTL, Residential, Total,, RES1J1, RES2J2
```

Then create subtotals for each jurisdiction.

```
SUB JUR1, jurisdiction, one,, RES1J1, IND1, NOS  
SUB JUR2, jurisdiction, two,, RES2J2, COMM2, NOS
```

Cost of Service will create reports and statistical information on the residential class total and reports for jurisdictions.

- **Group Sub-Total Continuation Format**

+ rate-class-prefixN+1, ... , rate-class-prefixN+Q [+]

- + (*plus sign*) ' — At the beginning of each Sub-Total Continuation record, you must enter a plus sign to indicate that this is a continuation of the preceding record. The preceding record must be either a Group Sub-Total record ending with a plus sign, or another Sub-Total Continuation record ending with a plus sign.
- *Rate-class-prefix* ' — Enter the rate-class-prefixes for the additional classes, sub-class groups, and customers you want included in the subtotal, up to a total of 50 rate-class-prefixes for the entire subtotal group defined by the SUB record and all continuations. Note: the ids must have their own records elsewhere in the Rate File.
- + (*plus sign*) ' — End the continuation record with a plus sign if you want to continue onto an additional Rate File record with more rate-class-prefixes to be included in the subtotal. The plus sign must be the last nonblank character on the continuation record, and must be immediately preceded by at least one blank or comma.

- **System Record Format**

You **must** include a System Record in the Rate File, and its rate-class-prefix can be up to 40 characters (usually "SYSTEM"). The other System Record fields use the same format as the Rate Class Record:

SYSTEM, rate-class-prefix, descriptor1, descriptor2, descriptor3, allocate error flag, weight factor, fixed loss amount, voltage level prefix, folding flag

The descriptors are user-defined (use them to create column titles in reports). The voltage level prefix is optional. The remaining fields are automatically set by the program and may be skipped: Allocate Error Flag is NO, Weight Factor is "0", Fixed Loss Amount is "0", and Folding Flag is NO.

- **Loss and Error Record Format**

Use the Loss and Error Records to specify column titles for reporting transmission and distribution losses and unexplained sampling error, respectively. Note, the position of these records in the Rate File will determine their position in reports.

LOSS, group, descriptor1, descriptor2, descriptor3

- *LOSS* — At the beginning of the Loss Record, you must enter LOSS to signal the type of record.
- *Group* — must be TOTAL (for the total system loss column) or one of the Voltage Level prefixes . No Group may be repeated on more than one Loss Record. If a Voltage Level occurs for one or more rate classes or sub-class groups, and there is no Loss Record entered for that Rate Class or Group, default column headings are generated and the columns positioned after report columns.
- *Descriptors 1, 2, and 3* — These three fields are used by COSI to create column titles in reports, one field per line.

ERROR, descriptor1, descriptor2, descriptor3

- *ERROR* — At the beginning of the Error Record, you must enter Error to signal the type of record. The error record must exist for any rates in the rate file that are allocated sampling error.
- *Descriptors 1, 2, and 3* — These three fields are used by COSI to create column titles in reports, one field per line.

Chapter 5

Preparing for Data Input

As we learned in **Chapter 1: Introduction to the Cost of Service Interface System**, your first step in working with the COSI is to build a database of “initial level data”. This data consists of the System Load, as well as rate class estimates and loads for special industrial customers. It is called “initial level data” because it has not yet been modified by the addition of sampling error and/or transmission and distribution losses. Here’s a summary of the data you will input into the GLDB:

DATA	SOURCE	INPUT PROGRAM
System Load	ELDB or SLDB or company file	Data Extraction Program Direct Input
Rate Class Estimates	SLDB or ELDB	Data Extraction Program
Loads for Special Customers	ELDB or SLDB or company file	Data Extraction Program Direct Input

You will probably collect this data from several different sources, and it will typically exist in different formats. For that reason, COSI provides two different data input programs: Direct Input and Data Extraction.

Determining Which Data Input Program to Use

Your choice of a data input program will depend on the source of your data:

1. Direct Input Program — You use this program to input data that resides outside of Oracle Utilities Load Analysis — coming in from translation programs, company files, other computer software, etc. Examples can include the System Load or loads for special industrial customers.
2. Data Extraction Program — You use this program to take data from the Oracle Utilities Load Analysis SLDB (Statistics Load Database) or ELDB (Extracted Load Database). Typical data includes the statistical estimates of rate class load estimates created with Oracle Utilities Load Analysis.

These two programs are explained in detail in the next two chapters.

When inputting data using either program, it is especially important to keep in mind the differences between the COSI format and other formats your data might have, including Oracle Utilities Load Analysis (see **Chapter 4: Setting Up** for a complete explanation):

COSI FORMAT REMINDER
<ol style="list-style-type: none">The COSI rate-class-prefix is limited to 40 characters. If the id on your incoming data is longer, COSI will automatically delete all but the first 40 characters. If the first 40 characters are not sufficient to distinguish between rate classes, assign a new 40 character rate-class-prefix using the Auxiliary Database (AXDB).COSI replaces all channel and strata numbers on incoming data with a "0" version number. If you need to retain the channel or strata number, you should rename the cut(s), incorporating the channel or strata number into the 40 character rate-class-prefix.

- The COSI rate-class-prefix is limited to 40 characters.**

If the id on your incoming data is longer, COSI will automatically delete all but the first 40 characters. If the first 40 characters are not sufficient to distinguish between rate classes, assign a new 40 character rate-class-prefix using the Auxiliary Database (AXDB).

- COSI replaces all channel and strata numbers on incoming data with a "0" version number.**

If you need to retain the channel or strata number, you should rename the cut(s), incorporating the channel or strata number into the 40 character rate-class-prefix.

Using Your Existing Conversion Programs to Create Input Files

The COSI input formats have been designed for compatibility with Oracle Utilities Load Analysis. This feature may enable you to use the same data conversion programs you currently use with Oracle Utilities Load Analysis to create input files for COSI.

Chapter 6

Getting Data into COSI Using the Direct Input Program

This chapter explains how to work with data that comes from outside of Oracle Utilities Load Analysis — from company files, conversion programs, or manually created files. It will tell you how to convert this data into the standard COSI format, and how to put it into the GLDB.

Note: If your data exists in the Oracle Utilities Load Analysis SLDB or ELDB, you should turn to **Chapter 7: Getting Data into COSI using the Data Extraction Program**.

Steps for Using the Direct Input Program

Here's a brief list of the steps you will follow when using the Direct Input Program to enter data into the GLDB. The remainder of this chapter explains these steps in detail.

SUMMARY — USING THE DIRECT INPUT PROGRAM
<ol style="list-style-type: none">1. Gather load data files for input.2. Determine whether or not data requires special modification using the Auxiliary Database (AXDB). If data requires modification, update and input the Auxiliary Database before proceeding. If not, continue on.3. Create Environment File (TGG11B).4. Select Input File (TGG11E) — the actual load data and descriptive information.5. Run the Direct Input Program (G110).6. Check output reports.

Step 1: Gather Load Data Files for Input

In the Direct Input mode, COSI reads load data from input files. You may be able to use your utility's existing Oracle Utilities Load Analysis conversion programs to create input files out of data from translators or other company files; or you may have to create the file(s) manually.

Step 2: Determine if Data Requires Special Modification Using the Auxiliary Database

COSI will automatically update most characteristics of the incoming load data to conform to the COSI format. Refer to **Oracle Utilities Load Analysis Load Data Analysis User's Guide** Chapter 5 for additional information about the X110 program.

Chapter 7

Getting Data into COSI using the Data Extraction Program

The previous chapter defined the steps for inputting data that originally resided outside of Oracle Utilities Load Analysis. This chapter explains how to extract data from the Oracle Utilities Statistics Load Database (SLDB) or Extracted Load Database (ELDB), and enter it into the GLDB.

What Does the Data Extraction Program Do?

This program enables you to extract actual load data for rate class estimates (statistics of mean demands) and/or special customers from the Oracle Utilities Load Analysis databases. You can also extract standard errors that will be required in the GLDB if you allocate error by the standard error method.

The program reads data from Oracle Utilities Load Analysis databases, expands it to the class level (if required), converts it to the COSI format, and writes it to the GLDB.

Steps for Using the Data Extraction Program

SUMMARY — USING THE DATA EXTRACTION PROGRAM
<ol style="list-style-type: none">1. Determine whether or not data requires special modification using the Auxiliary Database (AXDB). If data requires modification, update the Auxiliary Database before proceeding. If not, continue to Step 2.2. Create Data Extraction Environment File (TGZ12B).3. Create Data Extraction Control File (TGZ12A)4. Run Data Extraction Program (Z120).

These steps are described in detail on the following pages.

Step 1: Determine if the Data Requires Modification using the Auxiliary Database

There are three reasons you might want to modify extracted data using the AXDB before input to the GLDB:

- To translate an old customer-id or rate-class-id to a new one. (**Warning:** COSI will automatically delete all but the first 40 characters of incoming identifiers, and will replace all channel and strata numbers with a "0" version number. You can use the AXDB to assign new 40 character rate prefixes to incoming records. See COSI format reminder in **COSI FORMAT REMINDER** on page 5-2.)
- To add or modify the descriptor.
- To select specific cuts from a group of records in the Control File.

If you do not use the AXDB, the cut's first group title will be used as the descriptor.

If you wish to modify extracted data using the AXDB, turn to **Chapter 8: Allocating Energy to Hourly Demand** for instructions. If not, continue with Step 2.

Step 2: Create the Extraction Environment File (TGZ12B)

You use the Environment File to specify the data you want to extract. You create the file with four commands, as shown in the box below.

Enter one command per line. You need enter only the first three letters of a command keyword, and you can use blanks or commas as delimiters. If you enter any command more than once, COSI will automatically accept the last parameters entered.

```
DATE start-date stop-date  
CDAtE new-start-date new-stop-date  
ERRor  
SOURce [SLDB | ELDB | BOTH]  
ASIs  
AGG [n | 3600]
```

- **DATE** — This command is required. Use it to establish the start-date and stop-date of the extraction period. Note: this period always consists of complete days; i.e., start-date automatically begins at time "00:00:00" and the stop-date ends at "23:59:59". The date range may not exceed four months (2976 intervals at 3600 seconds per interval).
- **CDAtE** — This optional command allows you to assign to output GLDB records start and stop dates different from those of the extracted data (as established by the DATE command). Like the extraction date range, this period also consists of complete days; hours, minutes, and seconds entered that do not conform to this rule are ignored. If used, the CDAtE command must define a period equal in length to that defined by the DATE command.
- **ERRor** — Enter this command to extract the standard errors along with the sample data. (The standard errors may be required in the Premise Level Data Development phase.)
- **SOURce** — Use this command to identify the databases from which you wish the data to be extracted. If you don't enter this command, the program will automatically attempt to extract data from both databases. "ELDB" may be specified to indicate a CLDB, as the data structures are the same in both of those database types.
- **ASIs** — If you use this optional command, all extracted load data cuts (specified in the Control File by customer-id *and channel*) will be written to the GLDB with the customer-id,

channel, seconds-per-interval, and unit-of-measure that they have in the ELDB and/or SLDB, rather than converted to -ENTR-INIT statistics with channel=0 and 3600 seconds per interval. *This command has no effect on the extraction of ELDB statistics.*

- **AGGgregate** — When used in conjunction with the ASIs command, this optional command determines the interval size of load data records written to the GLDB. Valid values for n are 0, 300, 900, 1800, and 3600; 0 indicates that no aggregation is to be performed (interval size is the same as in ELDB/SLDB). This command is applied only to load data cuts, and only when the ASIs option is in force (either through the Environment File command or the Control File option); in all other cases, the GLDB cut is written with 3600-second intervals.

Following is a sample Extraction Environment File.

```
File: TGZ12B DATA
DATE      04/01/87 04/30/87
SOURCE    ELDB
ERROR
```

Step 3: Create the Extraction Control File (TGZ12A)

The Control File is essentially a list of the keys for the cuts or statistics you wish to extract from the ELDB, SLDB, or both. Create the Control File records using these formats:

- **For extracting customer loads**

```
customer-id ,channel [ ,ASIs ]
```

- *Customer-id* is required. Enter the customer-id(s) of the cut(s) you wish to extract.
- *Channel* is required. Enter the channel(s) of the cut(s) you wish to extract.
- *ASIs* is optional. It has the same effect on the individual-cut level as does the Environment File ASIs command on all load data cuts; see description above.

- **For extracting statistics**

```
statistics-id-prefix [,ERRor | ,NOError] [,COMBined | ,RATio | ,SEParate | ,100 |  
,STAndard] [,DOMains]
```

- *Statistics-id-prefix* is required. Enter the 6-character prefix of the statistic(s) you wish to extract.
- *Error/NoError* is optional. It pertains to this statistic record only. Specify “error” if you wish to extract the standard error for the rate class along with the statistics. If the Error parameter is set in the Environment File and you don’t want to extract a standard error for a particular rate class, you should use the “no error” option. Defaults to error option entered in Environment File.
- The *statistic type* is optional. Use it to identify the type of statistic you wish to extract (“type” referring to the methodology used to create the statistics in Oracle Utilities Load Analysis). This is used to create the customer-id of the record to be read from the ELDB. You may enter any *one* of the following options:

COMBined — combined stratified ratio analysis

RATio — unstratified ratio analysis

SEParate — separate stratified ratio analysis

STAndard — stratified or unstratified mean-per-unit analysis

100 — 100% sample analysis

To select Domains Ratio statistics, enter a statistic type of RATio followed by the additional parameter DOM.

To select Domains Mean-Per-Unit statistics, enter a statistic type STAndard followed by the additional parameter DOM.

If you do not include this parameter, the program will automatically use the default value, Standard.

If you are using SLDB, keys must be in ascending order.

Following is a sample Control File.

```
File: TGZ12A DATA
RGEN
RESH
G060
G200
G602
SCHP, NOERROR
```

Step 4: Run the Data Extraction Program (Z120)

If you have created the Environment File, Control File, and (optionally) updated the AXDB parameters, you are ready to run the Data Extraction Program. Use Z120.

The program will extract all cuts from the specified database(s) that: 1) are identified in the Control File by their key, and 2) have one or more intervals that fall within the date range you specified in the Environment File.

The program will also merge extracted cuts according to the following guidelines:

- Merging is performed in chronological order.
- If the unit-of-measure is different between two cuts, only the chronologically most recent cut is used.
- Only the data in the extraction range is merged.
- If an overlap occurs, the chronologically most recent data is used.
- If a gap occurs, “0” is entered for the missing intervals.
- The data is automatically aggregated to hourly data.
- The channel is set to “0”.

If a GLDB cut already exists, it is replaced by the newly entered data.

In addition, the cuts entered into the GLDB will have the following characteristics:

- The *start-time* is the start-date in the Environment File at time “00:00:00”.
- The *stop-time* is the stop-date in the Environment File at time “23:59:59”.

Chapter 8

Allocating Energy to Hourly Demand

In the previous chapters, we looked at how you enter interval load data for rate classes, sub-class groups, and special customers into the GLDB to create the initial level data. Now we will look at how you can develop interval data from the total energy values for street lighting, company use, and other loads for which interval data is not available, and enter the data into the GLDB.

The program offers five methods for allocating energy to hours:

- **Street Lighting Allocation** — (*Deprecated Feature* - Use of the Sunrise Sunset Calculator on the C/S GUI is the recommended method). Monthly energy is allocated to “burn hours” according to a sunrise/sunset table. Each complete hour of darkness receives an equal allocation of energy; any hour of partial darkness (i.e., an hour during which the sun rose or set) will receive an amount of energy proportional to the burn time.
- **Even Allocation** — Daily and/or monthly energy values are evenly allocated to hours. In other words, all hours in a day receive equal amounts of energy, as do all hours in a month. You can combine the results of both daily and monthly allocation to create a single load shape for a rate class or customer.
- **Allocation Based on Existing Load Shape** — Energy is allocated to hours according to an existing load shape or shapes. That is, in allocating a new energy value, each hour of the month receives the same fraction of the total monthly load as occurred with a previous specified load shape or linear combination of multiple loads.
- **Allocation Over Workdays** — Energy is allocated evenly over working hours during workdays.
- **Additive Allocation** — Allocates energy by adding and/or subtracting two or more existing load shapes.

Steps for Using the Energy Allocator Program

SUMMARY — ALLOCATING ENERGY
<ol style="list-style-type: none">1. Create the Energy Allocator Environment File (TGG13B)2. Create the Energy Allocator Control File (TGG13A) — define the allocation methodology and input energy values.3. Run the Energy Allocator Program (G130).

These steps are explained on the following pages.

Step 1: Create the Energy Allocator Environment File (TGG13B)

You use three commands to create the Environment File:

```
DATE start-date stop-date  
REPlace
```

- **Date** — A required command. Enter the start-date and stop-date of the energy allocation period. This command defines the duration of the output data. Note: this period always consists of complete days; i.e., the start-date automatically begins at “00:00:00” and the stop-date ends at “23:59:59”.
- **Replace** — Use this optional command if you want new records to replace any existing records with the same key. The default mode is to not replace existing records. If you don’t specify this command, (the default mode), the program will not process any new records with keys that already exist in the database.

Following is a sample Energy Allocator Environment File.

```
File: TGG13B DATA  
  
DATE 04/01/99 04/30/99  
REPLACE
```

Step 2: Create the Energy Allocator Control File (TGG13A)

The Control File consists of the energy values you want allocated to intervals, as well as descriptive information.

You construct this file with blocks of records. There are five types of blocks, one for each method of allocating energy — Street Lighting Allocation, Even Allocation, Allocation Based on Existing Load Shape, Allocation Over Workdays, and Additive Allocation. Each type of block has its own format, as shown on the following pages.

In constructing the file, you **must** begin each block with at least one Key, followed by the type of allocation. Each Block **must** terminate with an END statement. You can enter as many blocks as you wish, in any combination of types.

Enter one command per line. Energy values in may be entered in KWH, MWH, or GWH.

Keep requested keys already in the database. These must be 64 characters or less. However keys being written to database must be 40 characters or less.

- **For Street Lighting Allocation**

```
{KEY rate-class-prefix1 [, descriptor1]  
KEY rate-class-prefix2 [, descriptor2]  
...  
KEY rate-class-prefixN [, descriptorN] }  
  
LITe  
  
POPulation value1, value2 ... valueN  
  
ENERgy uom value1, value2 ... valueN  
  
SUN  
  
sunrise hour1, sunset hour1, sunrise hour2, sunset hour2 ...  
sunrise hour N, sunset hour N
```

END

- *KEY* is a required command. Enter the rate-class-prefix(es) (up to 40 characters) you want assigned to the new record(s). You can enter as many keys as you wish. Each key must be on a separate line.
 - *DEScriptor* is optional. You can use the remainder of each line to add a description for each key.
 - *LITe* is a required command. It identifies the allocation type, in this case street lighting allocation.
 - *POPulation* is optional. This allows you to include the population of the rate class on the record. Enter population value for each key. The default is 1.
 - *ENErgy* is a required command. Enter the 3-digit unit of measure of the energy value(s). Your choices are: KWH, MWH, and GWH. Also enter the energy value(s) you want broken down into intervals. You must enter one value for each key. This is a free-form field; separate values with blanks or commas.
 - *SUN* is a required command. On the line after you enter the command keyword “SUN”, enter the sunrise/sunset hour(s) for the period. You must enter one pair for each day of the period. You can enter one pair per line, or continue typing across the line. Separate times with commas or spaces.
 - *END* is a required command. Use it to signal the end of the block.
- **For Even Allocation**

KEY *rate-class-prefix* [,*descriptor*]

EVEn

POPulation *value*

{ **DAI**ly *uom value1, value2,...valueN* | **MON**thly *uom energy-value* }

END

- *Key* is a required command. Enter the rate-class-prefix (up to 40 characters) you want assigned to the new record. You can enter only one key.
- *Descriptor* is optional. You can use the remainder of the line to add a description of the record.
- *Even* is a required command. It identifies the allocation type, in this case even allocation.
- *Population* is optional. This field allows you to include the population of the rate class on the record written to the GLDB. Enter the population of the rate class. The default is 1.
- *Daily and Monthly* — You can enter either “Daily”, “Monthly”, or both. Use this field to describe the incoming uom and energy value(s).

If you have selected Daily, enter the required 3-digit unit of measure of the daily energy values. Your choices are: KWH, MWH, and GWH. Also enter the energy value for each day on the line following the keyword command “Daily”. Enter one value for each day in the period. This is a free-form field; separate data with commas or spaces, and you can enter as many values on a line that will fit.

If you have selected Monthly, enter the required 3-digit unit of measure of the monthly energy value. Your choices are: KWH, MWH, and GWH. Also enter the energy value for the month. Both of these should be entered on the same line as the keyword command “Monthly”.

If you select both Daily and Monthly, each will be allocated separately and then the two records will be added together. Different uom may be entered for Daily and Monthly.

- *End* is a required command. Use it to signal the end of the block.
- **For Allocation Based on Existing Load Shapes**

```
KEY rate-class-prefix [,descriptor]  
LOAD  
POPulation value  
SHApe1 customer-id, channel [,factor1]  
SHApe2 customer-id, channel [,factor2]  
...  
SHApeN customer-id, channel [,factorN]  
MONthly uom energy-value  
END
```

- *Key* is a required command. Enter the rate-class-prefix (up to 40 characters) you want assigned to the new record. You can enter only one key.
- *Descriptor* is optional. You can use the remainder of the line to add a description of the record.
- *Load* is a required command. It identifies the allocation type, in this case allocation based on load shape.
- *Population* is optional. This field allows you to include the population of the rate class on the record written to the GLDB. Enter the population of the rate class. The default is 1.
- *Shape* is a required command. Use it to identify the existing load shape you want to use as a model for allocating the new energy. Enter the customer-id and channel number of the existing load shape. **Note:** the existing load shape must be for the same month as the energy allocation period you specified in the Environment File.
- *Factor* is optional. If multiple shapes are input, they will be combined by simply adding them together or prorated based on the weight factor. The weight factor may be between 0 and 1. The default value for the weight factor is 1.
- *Monthly* is a required command. Enter the required 3-digit unit of measure of the energy value. Your choices are: KWH, MWH, and GWH. Also enter the value of the monthly energy you want allocated to intervals.
- *End* is a required command. Use it to signal the end of the block.
- **For Allocation Over Workdays**

```
KEY rate-class-prefix [,descriptor]  
WORK  
POPulation value  
TIME start-time end-time  
ENERgy uom energy-value  
END
```

- *Key* is a required command. Enter the rate-class-prefix (up to 40 characters) you want assigned to the new record. You can enter only one key.
- *Descriptor* is optional. You can use the remainder of the line to add a description of the record.
- *Work* is a required command. It identifies the allocation type, in this case allocation over workday hours.
- *Population* is optional. This field allows you to include the population of the rate class on the record written to the GLDB. Enter the population of the rate class. The default is 1.
- *Time* is a required command. It defines the starting and ending time of the workday. The times must be on even boundaries.
- *Energy* is a required command. Enter the required 3-digit unit of measure of the energy value. Your choices are: KWH, MWH and GWH. Also enter the value of the monthly energy you want allocated to intervals.
- *End* is a required command, used to signal the end of the block.

- **For Additive Allocation**

```

KEY rate-class-prefix1 [,descriptor1]
ADD
POPulation value
SHApe1 customer-id, channel [,factor1][SUBtract | ADD]
SHApe2 customer-id, channel [,factor2][SUBtract | ADD]
...
SHApeN customer-id, channel [,factor:N][SUBtract | ADD]
END

```

- *Key* is a required command. Enter the rate-class-prefix (up to 40 characters) you want assigned to the new record. You can enter only one key.
- *Descriptor* is optional. You can use the remainder of the line to add a description of the record.
- *Add* is a required command. It identifies the allocation type, in this case adding load shapes together.
- *Population* is optional. This field allows you to include the population of the rate class on the record written to the GLDB. Enter the population of the rate class. The default is 1.
- *Shape1* ... *Shapen* are required commands. Use these commands to identify existing load shapes you want added together. Enter the customer-id and channel number of the load shapes to be added. You must specify at least two shapes.

ADD or *SUBtract* is optional. If *SUBtract* is specified, the shape will be subtracted from the other shapes to create the new record. If *ADD* is specified, the shape will be added to the other shape(s) to create the new record. *ADD* is the default.

Factor is optional. If multiple shapes are input, they will be combined by simply adding/ subtracting them or prorated based on the weight factor. The weight factor may be between 0 and 1. The default value for the weight factor is 1.

- *End* is a required command, used to signal the end of the block.

- **For Multiplication**

```

MUL custid, channel [start-time]

```

```

WRIte rate-class-prefix1 ,constant [, descriptor]
WRIte rate-class-prefix2 ,constant [, descriptor]
...
WRIte rate-class-prefixn ,constant [, descriptor]
END

```

- *Multiply* is a required command. You must provide the custid and channel of the cut you want to process. You may also enter an optional start_time.
- *Write* is a required command. It identifies the cut you want to create. Enter the rate-class-prefix (up to 40 characters) you want assigned to the new record, a numeric constant to multiply by and an optional descriptor. The constant must be a positive number with fifteen (15) or fewer significant digits.
- *End* is a required command, used to signal the end of the block.

Following is a sample Energy Allocators Control File.

```

File: TGG13A DATA

KEY STLITE, STREET LIGHTING LOAD
KEY PTLITE, PRIVATE LIGHTING LOAD
LITE
ENERGY KWH 10767000, 1841000
SUN
5:52 18:30 5:50 18:31 5:49 18:32 5:47 18:33 6:45 19:34 6:44 19:35
6:42 19:36 6:41 19:37 6:39 19:38 6:38 19:39 6:36 19:40 6:35 19:41
6:33 19:42 6:32 19:43 6:30 19:44 6:29 19:45 6:27 19:46 6:26 19:47
6:25 19:48 6:23 19:49 6:22 19:50 6:20 19:51 6:19 19:52 6:18 19:53
6:16 19:54 6:15 19:55 6:14 19:56 6:12 19:57 6:11 19:58 6:10 19:58
END

KEY MISC, MISC, GEN PLANT & SUBSTATION
EVEN
DAILY
44000 490000 403000 306000 327000 553000 426000
443000 488000 330000 329000 457000 504000 430000 461000
533000 494000 513000 515000 418000 448000 453000
526000 374000 400000 444000 393000 401000 373000 502000
MONTHLY KWH 1211000
END

KEY IDS, INTERDEPARTMENT SALES
LOAD
SHAPE G060-ENTR-INIT,0
SHAPE G602-ENTR-INIT,0
SHAPE G200-ENTR-INIT,0
MONTHLY KWH 5823000
END

KEY TCP, TESTING & CONSTRUCTION POWER
WORK
TIME 9:00 16:00
ENE KWH 236000
END

MUL STANDO-ENTR-INIT,0,01/01/97-00:00:00
WRI SOENR .333 STANDARD OFFER
WRI SOPRO .333 STANDARD OFFER PROV SOUTH
WRI SODLD .334 STANDARD OFFER DLD
END

```

Step 3: Run the Energy Allocator Program (G130)

Once you have created the Control and Environment files, you should be ready to run the Energy Allocator Program. Use G130.

The Energy Allocator Program will process each block separately. If there are any errors, the program will discard the affected block, write out a diagnostic message (which you can read in the Execution Log and/or Summary Report), and continue on to the next block. If there are no errors, the program will allocate the energy to the individual hours and will write the data to the GLDB. A new record will be created for each KEY command in the Control File. The ID for each newly entered record will be: "(rate-class-prefix)-ENTR-INIT".

The channel will be 0 and the start time will be the start date from the environment file at time "00:00" and the stop time will be the stop date from the environment file at time "23:59:59".

Each of the five different methods allocate energy to hourly values as follows:

- **For Street Lighting Allocation** — Using the sunrise/sunset table, actual burn hours are calculated. Burn hours are the time from sunset to sunrise. The energy value is converted to KWH, if it isn't already, and then allocated evenly over the burn hours. Partial hours, the hours of sunrise and sunset, will get energy allocated to them proportional to the amount of burn time in the hour.
- **For Even Allocation** — If daily energy values are used, they are converted to KWHs, if needed. Then, each daily energy value is divided by 24 and allocated evenly to each hour of that day. This is done for each day of the month. If a monthly energy value is entered, it is converted to KWH, divided by the number of hours in the month and allocated evenly to each hour of the month. If both daily and monthly energy values are entered, each one is allocated separately and then added together to create the final cut.
- **For Allocation Based on Existing Load Shapes** — Each load shape is read from the database and each hour is multiplied by its weight factor, which defaults to one. Once all load shapes have been multiplied by their weight factor, they are added together. The monthly energy value is converted to KWH if needed, and then allocated to each hour of the month proportional to the final load shape explained above. The program used the following formulas (where i = hour):

$$\begin{aligned} & \text{Shape1}_i * \text{weight factor1} = \text{Shape1}'_i \\ & \underline{+ \text{Shape2}_i * \text{weight factor2}} = \frac{+\text{Shape2}'_i}{\text{Shape}_i} \\ & (\text{rate-class-prefix})\text{-ENTR-INIT}_i = \frac{\text{Shape}_i}{\sum_{i=1}^N \text{Shape}_i} * \text{monthly energy} \end{aligned}$$

- **For Allocation Over Workdays** — The energy value will be converted to KWH, if needed. Then it will be allocated evenly to non-holiday week days to the hours between the start time and end time.
- **For Additive Allocation** — Each shape given will be read from the database and added together to create the new record.
- **For Multiplication** — The shape designated by the MUL command will be read from the database, multiplied by the designated constant and written out to the specified rate class prefix.



Chapter 9

Editing Data in the GLDB

You can use the Data Editor Program to modify cut keys and interval data that reside in the GLDB. Typically, you would use this feature to fill in gaps in load data that resulted from outages, or you might use it to modify the results of the Energy Allocator program. You may also use the Interval Data Manager (IDM) to edit cuts in this database.

For more information, refer to the *Oracle Utilities Load Analysis Load Data Management User's Guide*.

Chapter 10

Allocating Sampling Error to Rate Classes (Premise Level Data Development)

In this chapter we will look at how you perform the next level of data development, in which you add the unexplained sampling error to the Initial Level Data to create the **Premise Level Data**.

COSI offers three methodologies for allocating unexplained sampling error among the individual classes and sub-class groups. You can:

- Allocate sampling error proportionally to each class or group, based on its share of the total load.
- Allocate sampling error proportionally to each class or group based on the standard error of class estimates.
- Assign sampling error to an existing or unsampled rate class or group.

At the conclusion of this process, the program will create and store three types of records in the GLDB: the system transmission and distribution loss record with the key “system-ENTR-TLOS”, voltage level loss — records with the key “Vn-ENTR-TLOS” (*n* can be a voltage level from 1 to 9), and premise level data records for each rate class with the suffix PRMS. Optionally, statistics may be computed and stored in the GLDB.

Steps for Using the Premise Level Development Program

SUMMARY — ALLOCATING SAMPLING ERROR
<ol style="list-style-type: none">1. Create the Premise Environment File (TGG21B) — define the methodologies for allocating System losses and unexplained sampling error.2. Verify that the Rate File (TGG21C), Time-of-Use File (TGY31D), and Holiday File (TGY31C) are set up properly.3. Run the Premise Level Data Development Program (G210).

Step 1: Create the Premise Environment File (TGG21B)

The Premise Environment File contains eleven commands which determine the program's mode of operation.

When creating the Environment File, enter one command per line. You may enter the commands in any order. If you do not specify a command, the program will assume the default.

```
DATE start-date stop-date

LOSs voltage-level-prefix {CUT recorderid channel [fixed-loss]
    | variable-loss [fixed-loss] [LOAD peak-load] }

VERsion [n | 0]

TITLe text

{VARiable | FIXed-variable [ENVironment | RATe]}

{PROportional | STAndard | ADD rate-class-prefix}

REPlace

DIScrepancy rate-class-prefix

PEAk peak-time

SCHedule [n | 0]

WRITe [INITial | PREmise | NONe | ALL] [AVE][,CD][,ENE][,MAX][,MCD][,MIN]
```

```
DATE start-date stop-date
```

- **Date** — A required command. Enter the start-date and stop-date of the desired premise level development period. **Note:** This period always consists of complete days; i.e., the start-date automatically begins at “00:00:00” and the stop-date ends at “23:59:59”.

```
LOSs voltage-level-prefix {variable-loss [fixed-loss] [LOAD peak-load]
    | CUT recorderid channel [fixed-loss] }
```

- **Loss** — A required command. Enter the value for each voltage level's variable loss at the hour of the System peak. This may be the monthly peak, seasonal peak, or yearly peak. Enter the loss amount in KW. A separate Loss command must be entered for each voltage level that is used by one or more rates in the rate file.

If the FIX command with the ENVironment option is used (see below), enter the fixed loss for the voltage level after the variable loss.

In addition, you may optionally enter the keyword LOAD followed by a peak load amount for this voltage level. If you supply this peak load on any LOSs command, you must supply it on all. If you do not supply peak loads, the program will use each voltage level's load at the time of the System peak

Alternatively, you can enter the keyword CUT and then a recorderID and channel to specify a cut in the GLDB database to represent hourly losses for each rate class. The CUT command may be used if you have detailed hourly loss values that change over the date period specified or have a different loss value at time of system peak. You may wish to run a Load Data Reporter ENERgy report on the TLOS or VLOS record written by this program to see the results of the CUT command to ensure that what was written to the database is what was intended. The resultant TLOS and VLOS cuts will be used by G250. The following formulas represent this method:

Fixed Loss Method when CUT is coded:

$$TLOS_{(h)} = LOSS_CUT_{(h)}$$

Variable Loss Method when CUT is coded:

$$VLOS_{(h)} = TLOS_{(h)} + \text{fixed hourly Loss}$$

VERsion [n | 0]

- **Version-number** — Use this field to identify your test versions. In other words, you may run the program a number of times using different allocation methodologies. The version number enables you to identify the results and keep them separate. Enter a single number (0 - 9); the default value is “0”.

TITLe *text*

- **Title** — An optional field, which you may use to describe the version. You can use the entire line.

{**VARi**able | **FIXed**-variable [**ENVi**ronment | **RATe**]}

- **Variable or Fixed/Variable** — With this required command, you can define how the program will estimate the total System losses to each hour in the period:
 - The Variable Loss Method estimates loss to each hour in proportion to the System load. This proportion is the square of Voltage Level or System load for any hour, divided by the square of the peak load (either the load at the hour of the System peak, or the peak load supplied on the LOSs command for each voltage level).
 - The Fixed/Variable Method allocates a constant fixed loss to each hour in the period plus a variable portion. The variable portion is calculated as described above, after the fixed portion has been subtracted from both numerator and denominator. The FIX command also allows you to indicate whether Fixed Losses are to be read from the Rate File for each rate, or from the Environment File for each voltage level; the Environment File is the default.

{**PRO**portional | **ST**andard | **ADD** *rate-class-prefix*}

- **Allocate Sampling Error**— A required command. Use this command to establish the method of allocating unexplained sampling error. **Note:** to use either the Proportional or Standard Error method, at least one rate class (or sub-class group) must be set to YES in the “allocate error” field in the rate files (see “Rate File” in **Chapter 4: Setting Up**).
 - *The Proportional method* assigns the unexplained error to each hour in each rate class or sub-class groups that make up a class, based upon each rate class’s share of the total load.
 - *The Standard Error method* assigns the unexplained error to each hour in each rate class, based upon the square of each rate class (or sub-class group’s) standard error divided by the sum of all sampled rate classes’ standard errors squared for each hour. **Note:** Each rate class that is to receive a portion of the error must have a standard error record in the GLDB.
 - *The Add Command* enables you to assign all of the unexplained error to one rate class or sub-class group. Identify the recipient of the error by inputting its rate-class-prefix. **Note:** This key must be listed in the Rate File, but it is not necessary that it have data

already assigned to it (in other words, it doesn't have to be in the database already, but it could be).

REPlace

- **Replace** — Use this optional command if you want new records to replace any existing records with the same key. The default mode is to not replace existing records. If you don't specify this command (the default mode), the program will not process any new records with keys that already exist in the database.

DIScrepancy *rate-class-prefix*

- **Discrepancy** — Any rounding errors will be added to the rate class (or sub-class group) you specify with this command. If you do not specify a rate class, any discrepancy (rounding errors) will be given to the first rate class in the Rate File. This is to ensure the lines and columns in the reports add up.

SCHedule [*n* | *Q*]

- **Schedule** — With this command, you specify whether you want the statistics to be created by the entire period (as defined by the DATE Command) or for time-of-use periods. If you do not enter a number after the command, the schedule number defaults to "0" and statistics will be calculated for the entire period only. On the other hand, if you want statistics calculated for a given time-of-use schedule, enter the time-of-use schedule number, as identified in the Time-Of-Use File.

PEAk *peak-time*

- **Peak** — This command establishes the supplied peaks. The default is none.

WRIte [**INI**tial | **PRE**mise | **NON**e | **ALL**] [**AVE**][**CD**][**ENE**][**MAX**][**MCD**][**MIN**]

- **Write** — Use this command to specify the statistics you want written to the database. You can identify both the data level and the type of statistic. The default is all statistics for both Initial and Premise Level Data.

First, identify the data level for which you want the statistics to be written to the database. You have four options (the default is ALL):

<i>All</i>	Statistics for both Initial and Premise Level Data will be written.
<i>INI</i> tial	Statistics will be written for Initial Level Data only.
<i>PRE</i> mise	Statistics will be written for Premise Level Data only. PRMS may be used also.
<i>NON</i> e	No statistics will be written.

Next, identify the type(s) of statistics you want written. Select as many types as you wish. If you do not select a statistic type, all of the statistics types will be written for the specified data level. The options are:

<i>AVE</i>	Average weekend and weekday for each rate class.
------------	--

<i>CD</i>	Coincident demand — the value for each rate class at the hour of the System peak. The program will calculate values for the entire period and for the time-of-use schedules you selected with the Schedule Command.
<i>ENE</i>	Energy — total energy for each time-of-use schedule you selected with the Schedule Command and for the entire period.
<i>MAX</i>	Maximum hourly demand — each rate class or sub-class group’s peak for the entire period and for each specified time-of-use schedule. This will also create coincident demands for each class, the value for each sub-class group (in the subtotal) at the hour of the class (subtotal) peak.
<i>MCD</i>	Minimum Coincident Demand — the value for each class or sub-class group at the time of the System minimum demand. The program will calculate values for the entire period and for the time-of-use schedules you selected with the Schedule Command.
<i>MIN</i>	Minimum hourly demand — each rate class’ minimum for the entire period and for each specified time-of-use schedule. This will also create minimum coincident demands for each class, the value for each sub-class group (in the subtotal) on the hour of the class (subtotal) minimum.

Each Write command creates a record with a specific statistic qualifier as the middle portion of the customer-id. The following table shows what statistic qualifier(s) each Write command produces.

WRITE COMMAND	STATISTIC QUALIFIER	DESCRIPTION
AVE	HWN	Average holiday and weekend demand
	WD	Average weekday demand
	WN	Average weekend demand
CD	SCD	Each demand coincident with the System peak
ENERGY	NGY	Rates total energy
MCD	SMCD	Each demand coincident with the System minimum
MAX	NCD	Each maximum non-coincident hourly demand
	CD	A sub-class group’s demand coincident with the class (subtotal) peak
MIN	MNCD	Each minimum non-coincident hourly demand
	MCD	A sub-class group’s demand coincident with the class (subtotal) minimum

Again, if you do not specify either a data level or a statistics type, the program will write all statistics for both Initial and Premise Level Data.

Following is a sample Premise Environment File.

```
File: TGG21B DATA
DATE 04/01/87 04/30/87
TOTAL 159000
REPLACE
FIX
STA
SCH 1
WRI PRMS AVE CD MAX MIN MCD
```

Step 2: Verify that Files are Set Up Properly

Make certain that Rate File (TGG21C), Time-Of-Use File (TGY31D), and Holiday File (TGY31C) are set up properly. See **Chapter 4: Setting Up**.

Step 3: Run the Premise Level Data Development Program (G210)

Submit the job with G210.

Processing: System Loss

The program will calculate hourly losses, by Voltage Level and for the entire System, and enter the records into the GLDB. If you selected the Variable Method of allocating losses, the program will create a set of records with the keys “system-ENTR-TLOS”, where system is the system-level prefix, and “Vn-ENTR-TLOS”, where Vn is one of the Voltage Levels as defined in the Rate File. If you selected the Fixed/Variable Method, it will create two sets of records: one with the keys “system-ENTR-VLOS” and “Vn-ENTR-VLOS” (the variable portion only), and another with the keys “system-ENTR-TLOS” and “Vn-ENTR-TLOS” (the total variable and fixed loss). The program uses the following formulas (where L = hour):

- **For Variable Loss Method**

$$TLOS_L = \begin{matrix} \text{Voltage Level Loss} \\ \text{(from Environment File)} \end{matrix} \times \left(\frac{\text{Voltage Level Load}_L}{\text{Voltage Level Peak Load}} \right)^2$$

- **For Fixed/Variable Loss Method**

$$VLOS_L = \begin{matrix} \text{Voltage Level Loss} \\ \text{(from Environment File)} \end{matrix} \times \left(\frac{\text{Voltage Level Load}_L - \text{Total Fixed Losses for Voltage Level}}{\text{Voltage Level Peak Load} - \text{Total Fixed Losses for Voltage Level}} \right)^2$$

$$TLOS_L = VLOS_L + \text{Total Fixed Losses}_L \text{ for a voltage level}$$

The System loss record contains the sums of the hourly losses for all Voltage Levels in the System.

Processing: Unexplained Sampling Error

The program will next calculate the unexplained sampling error for each class. Its first task will be to create a record for the total error, using this formula (where L = hour and N = the number of rate classes and sub-class groups to receive error):

$$TotalError_L = System\ Load_L - \left(\sum_{k=1}^N \frac{Load\ of\ Each\ Class_L}{System\ Loss_L} \right)$$

COSI will store the resulting record with the key: “system-ENTR-ERR”.

Then the program will assign the error to each rate class (or sub-class group), by hour. It will create two records for each rate class: “(rate-class-prefix)-ENTR-ERR” is the amount of error assigned to the rate class, and “(rate-class-prefix)-ENTR-PRMS” is the rate class load data plus amount of assigned hourly error. The program’s calculations will depend upon which allocation method you selected in the Premise Environment File:

- **For Proportional Method**

$$TLOAD_L = \sum_{K=1}^N \text{Load of Each Class}_L \langle \text{that is allocated error} \rangle$$

$$Error_L = \frac{Total\ System\ Error}{(system - ENTR - ERR)} \times \frac{Load\ of\ Class_L}{TLOAD_L}$$

$$PRMS_L = INIT_L + ERROR_L$$

- **For Standard Error Method**

$$TVAR_L = \sum_{K=1}^N (\text{Standard Error}_L^2)$$

$$Error_L = \frac{Total\ System\ Error_L}{(system-ENTR-ERR)} \times \frac{(\text{Std Error of Class}_L)^2}{TVAR_L}$$

$$PRMS_L = INIT_L + ERROR_L$$

- **For ADD**

All unexplained sampling error will be assigned to the specified key.

$$Rate\ Class_L = \frac{Total\ System\ Error_L}{(system-ENTR-ERR)}$$

Chapter 11

Allocating Transmission and Distribution Losses and Unbillable Loads to Rate Classes (Generator Level Data Development)

This chapter explains the final level of data development in which you will allocate transmission and distribution (T&D) losses and unbillable loads to classes, sub-class groups, and special customers. The result of allocating T&D losses to classes is called **Generator Level 1 Data**, and the result of allocating unbillable loads is called **Generator Level 2 Data**.

COSI offers two methodologies for allocating T&D losses among the individual classes: Variable and Fixed/Variable. With the Variable Method, each class receives a portion of the T&D losses according to the weight factor you assigned to the class in the Rate File. With the Fixed/Variable Method, each class receives the variable portion, plus a fixed amount, which is also defined in the Rate File.

At the end of this process, the program will store two types of records in the GLDB: Generator Level 1 Data records with the prefix “GNR1”, and Generator Level 2 Data records with the prefix “GNR2”. Optionally, statistics may be computed and stored in the GLDB for both types of records.

Steps for Using the Generator Level Development Program

SUMMARY — ALLOCATING T&D LOSSES AND COMPANY USE
<ol style="list-style-type: none">1. Create the Generator Environment File (TGG25B).2. Verify that the Rate File (TGG21C), Time-Of-Use File (TGY31D), and Holiday File (TGY31C) are set up properly.3. Run the Generator Level Data Development Program (G250).

Step 1: Create the Generator Environment File (TGG25B)

The Generator Environment File contains up to ten commands which determine the program's mode of operation.

When creating the Environment File, enter one command per line. You may enter the commands in any order. If you do not specify a command, the program will assume the default (identified in the text following the illustration).

```
DATE start-date stop-date
VERsion [n | 0] | INPut [n | 0] | OUTput [n | 0]
REPlace
TITle
{VARiable | FIXed-variable |RATe | ENVironment| CD | NCD | SCD}
LOSs voltage-level-prefix fixed-loss
FOLD rate-class-prefix, rate-class-prefix1, ... rate-class-prefixN
DIScrepancy rate-class-prefix
SCHedule [n | 0]
PEAk peak-time
WRITe [GNR1 | NGNR2 | NONE | ALL] [AVE] [,CD] [,ENE] [,MAX] [,MCD] [,MIN]
[,SD]
```

```
DATE start-date stop-date
```

- **Date** — A required command. Enter the start-date and stop-date of the desired generator level development period. **Note:** This period always consists of complete days; i.e., the start-date automatically begins at “00:00:00” and the stop-date ends at “23:59:59”.

```
VERsion [n | 0] | INPut [n | 0] | OUTput [n | 0]
```

- **Version-number** — Use this field to identify your test versions. You may want to run the program a number of times using different T&D loss allocation methodologies, and this feature enables you to identify the results and keep them separate.

Use the *version-number* if you want your output to have the same version-number as the input (Premise Level Data). Enter a single number; the default value is “0”.

Use the *input and output number option* if you want to apply different T&D loss allocation methodologies to the same set of Premise Level Data. Use the input number to identify the version-number of the Premise Level Data to be read and the output number for the Generator Level Data to be written. Enter a single number for each field (0 - 9); the default value is “0”. If you enter only an input number or an output number, the other defaults to “0”.

```
REPlace
```

- **Replace** — Use this optional command if you want new records to replace any existing records with the same key. The default mode is to not replace existing records. If you don't

specify this command (the default mode), the program will not process any new records with keys that already exist in the database.

TITle

- **Title** — An optional field, which you may use to describe the version.

{VARiable | FIXed-variable [RATe | ENVironment] [CD | NCD | SCD] }

- **Variable or Fixed/Variable** — With this command, you can define how the program will allocate the hourly System losses to the classes. You must use the same methodology you used to develop the Premise Level Data.
 - *The Variable Loss Method* allocates a portion of the T&D losses to each class (or sub-class group) according to the proportion of the class's hourly load to the System's hourly load times the weight factor (which you assigned to the class in the Rate File). If the weight factors do not completely allocate and account for all of the variable losses, the remaining variable losses will be prorated over the classes proportional to the initial allocation of variable losses.
 - *The Fixed/Variable Method* allocates a variable portion of the T&D losses to each class (or sub-class groups), calculated in the same manner as above, plus a constant fixed amount defined in either the Rate File (by rate class) or the Environment File (by voltage level). You select either the Rate File or the Environment File via the FIX command; if neither is specified, the Rate File is assumed.

If you choose to input fixed losses via the Environment File, an additional parameter allows you to select the method of distributing fixed losses over the rates in a voltage level. If you specify CD, each rate in a Voltage Level receives fixed loss proportional to the ratio of its entire period Coincident Demand to the sum of CDs for all rates in that voltage level. The ratio of NCD or SCD may also be selected via this command; the default is SCD.

LOSs *voltage-level-prefix fixed-loss*

- **Loss** — If you have chosen, via the FIX command (above), to input fixed losses via the Environment File, use a separate LOSs command to supply a fixed loss for each voltage level that is used by one or more rates in the Rate File.

FOLD *rate-class-prefix, rate-class-prefix1, ... rate-class-prefixN*

- **Fold** — An optional command. This command is used to allocate unbillable loads to other classes. First enter the rate-class-prefix of the class that you want added into the other classes (or sub-class groups), then enter the key or key(s) which you want to receive the unbillable energy.

DIScrepancy *rate-class-prefix*

- **Discrepancy** — Any rounding errors will be added to the class you specify with this command. If you do not specify a rate class, any discrepancy (rounding errors) will be given to the first class, sub-class group, or customer in the Rate File.

SCHedule [*n* | *0*]

- **Schedule** — With this command, you specify whether you want the statistics to be created by the entire period (as defined by the DATE Command) or by time-of-use periods. If you do not enter a number after the command, the schedule number defaults to "0" and statistics will

be calculated for the entire period only. On the other hand, if you want statistics calculated for a given time-of-use schedule, enter the time-of-use schedule number, as identified in the Time-Of-Use File.

PEAk *peak-time*

- **Peak** — This command establishes the supplied peaks. The default is none.

WRITe [GNR1 | NGNR2 | NONe | ALL] [AVE] [,CD] [,ENE] [,MAX] [,MCD] [,MIN] [,SD]

- **Write** — Use this command to specify the statistics you want written to the database. You can identify the data level and the type of statistics. The default is all statistics for both Generator Level 1 Data and Generator Level 2 Data.

First, identify the data level for which you want the statistics to be written to the database. You have four options (the default is ALL):

ALL	Statistics for both Generator 1 and Generator 2 Level Data will be written.
GNR1	Statistics will be written for Generator Level 1 Data only.
GNR2	Statistics will be written for Generator Level 2 Data only.
NONe	No statistics will be written.

Next, identify the type(s) of statistics you want written. Select as many types as you wish. If you do not select a statistic type, all of the statistic types will be written for the specified data level. The options are:

<i>AVE</i>	Average weekend and weekday for each rate class.
<i>CD</i>	Coincident demand — the value for each rate class at hour of System peak. The program will calculate values for the entire period and for the time-of-use schedules you selected with the Schedule Command.
<i>ENE</i>	Energy — total energy for each time-of-use schedule you selected with the Schedule Command and for the entire period.
<i>MAX</i>	Maximum hourly demand — each rate class or sub-class group's peak for the entire period and for each specified time-of-use schedule. This will also create coincident demands for each class; the value for each rate class (in the subtotal) at the hour of the class (subtotal) peak.
<i>MCD</i>	Minimum Coincident Demand — the value for each rate class at the time of system minimum demand. The program will calculate values for the entire period and for the time-of-use schedules you selected with the Schedule Command.
<i>MIN</i>	Minimum hourly demand — each rate class's minimum for the entire period and for each specified time-of-use schedule. This will also create minimum coincident demands for each class; the value for each sub-class group (in the subtotal) on the hour of the class (subtotal) minimum.

Each Write command creates a record with a specific statistic qualifier as the middle portion of the customer-id. The following table shows what statistic qualifier(s) each Write command produces.

WRITE COMMAND	STATISTIC QUALIFIER	DESCRIPTION
AVE	HWN	Average holiday and weekend demand
	WD	Average weekday demand
	WN	Average weekend demand
CD	SCD	Each demand coincident with the System peak
ENERGY	NGY	Rates total energy
MCD	SMCD	Each demand coincident with the System minimum
MAX	NCD	Each maximum non-coincident hourly demand
	CD	A sub-class group's demand coincident with the class (subtotal) peak
MIN	MNCD	Each minimum non-coincident hourly demand
	MCD	A sub-class group's demand coincident with the class (subtotal) minimum

Again, if you do not specify either a data level or a statistics type, the program will write all statistics for both Generator Level 1 Data and Generator Level 2 Data.

Following is a sample Generator Environment File.

```
File: TGG25B DATA
DATE 04/01/87 04/30/87
REPLACE
FIX
DIS RGEN
FOLD IDS G200 SCHP ABCST XYZRR
FOLD MISC RGEN RESH G060 G602 G200 SCHP ABCST XYZRR
FOLD TCP RGEN RESH G060 G602 G200 SCHP ABCST XYZRR
SCH 1
VERSION INPUT 7
VERSION OUTPUT 7
WRITE GNR2 AVE CD MAX MCD MIN
```

Step 2: Verify that Files are Set Up Properly

Make certain that the Rate File (TGG21D), Time-Of-Use File (TGY31D), and Holiday File (TGY31C) are set up properly. See **Chapter 4: Setting Up**.

Step 3: Run the Generator Level Data Development Program (G250)

Submit the job with G250.

Processing: Allocate Losses

The program will allocate the T&D losses to the classes, sub-class groups, and customers, and enter the records into the GLDB. The program uses the following formulas to allocate energy (where L = hour):

- **For Variable Method**

$$GNR1_L = PRMS_L + \frac{\text{Voltage Level Variable Loss}}{(Vn-ENTR-TLOS)} \times \frac{\text{Class Premise Level Load}_L \times \text{Weight Factor (from Rate File)}}{N} \sum_{k=1}^N \frac{\text{Rates Who Get Losses}_L \text{ in Voltage Level}}$$

- **For Fixed/Variable Method**

$$GNR1_L = PRMS_L + \frac{\text{Voltage Level Variable Loss}_L}{(Vn-ENTR-VLOS)} \times \frac{\text{Class Premise Level Load}_L \times \text{Weight Factor} + N}{N} \sum_{k=1}^N \frac{\text{Rates Who Get Losses}_L \text{ in Voltage Level}}$$

*Rate Class's
Fixed Loss
Amount (from
Rate File)*

If the weight factors do not completely allocate and account for all of the variable losses, the remaining variable losses will be prorated over the classes proportional to the initial allocation of variable losses (where L = hour and N = number of classes that are allocated losses):

$$GNR1_L = GNR1_L + \left(\frac{\text{Voltage Level Losses} - \text{Allocated So Far}}{\text{Total Losses}} \right) \times \left(\frac{\text{Rate Class Variable Loss}_L}{\sum_{K=1}^N \text{Rate Classes Variable Losses}_L} \right)$$

Processing: Allocate Unbillable Loads

After losses have been allocated, the selected unbillable loads will be allocated to the appropriate classes, sub-class groups, and customers. The unbillable loads are allocated to each proportional to their load.

$$GNR2_L = GNR1_L + \left(\frac{\text{Unbillable Load } N_L}{\sum \text{Unbillable Load } N_L} \times \frac{GNR1_L}{\sum \text{GNR1's Who Get Unbillable Load } N_L} \right)$$

Chapter 12

Developing Cost Allocation Factors

This chapter describes how to develop cost allocation factors for use with COSI, including:

- **What Are Cost Allocation Factors?**
- **COSI Offers a Program for Developing Cost Allocation Factors**
- **Steps for Using the Cost Allocator Program**
- **Cost Allocator Output File**

What Are Cost Allocation Factors?

Each utility has costs related to generation, transmission, and distribution. These costs can be “functionalized” into three categories: demand, energy, and customer. Each rate contributes to the costs in each category. A Cost Allocation Factor is a rate’s percent of contribution to a utility’s cost in a particular category. Each category, and Cost Allocation Factors for each category are as follows:

- **Demand Costs** vary in proportion to the level of demand placed on the system, usually at system peak. Therefore, Demand Cost Allocation Factors pertain to a rate’s percent of contribution to demand. There are different methods of calculating a rate’s contribution to demand.
 - *Coincident Demand (CD)* is the percent of a rate’s demand to the total demand at the hour of the system peak.
 - *Non-Coincident Demand (NCD)* is the percent of the rate’s peak demand to the sum of all rate’s peak demands.
 - *Average and Excess (AVE)* is a combination of excess system demand spread over all rate classes based on the proportion of excess NCD plus average demand (hours use).
 - *Supplied Peak Demand* is the percent of a rate’s demand to the total system demand at the hour or hours supplied by the user.

A utility may use one of these methods or a combination when they calculate a rate’s contribution to demand costs. Therefore, the Cost Allocator Program allows you to produce Cost Allocation Factors for all methods.

- **Energy Costs** vary with the number of kilowatt hours produced. The Cost Allocation Factor, for each rate, is the percent of the rate’s total energy to the system total energy.
- **Customer Costs** vary with the number of customers served. The cost allocation factor, for each rate, is the percent of the rate’s population to the system population.

See **Chapter 1: Introduction to the Cost of Service Interface System** for more information on Cost Allocation.

COSI Offers a Program for Developing Cost Allocation Factors

Because each utility may incorporate different methods of cost allocation, the Cost Allocator Program allows many different methods of creating cost allocation factors.

- Cost Allocation Factors will be developed for each of the above three categories (demand, energy, and customer).
- Cost Allocation Factors will be developed for each rate class.
- Cost Allocation Factors may be developed for each time use of period. Customer and Supplied Peak cost allocation factors are not developed by time of use.
- Cost Allocation Factors may be developed for three levels of data development. The three levels are Premise Level, Generator Level 1, and Generator Level 2.
- Cost Allocation Factors may be developed over a date range of one to twelve months. Up to two nonconsecutive date ranges may be used.
- Demand Cost Allocation Factors may be developed by using the highest System monthly peak in the date range, or by averaging several highest months' peak demands.

This chapter describes the Cost Allocator Program in detail.

Steps for Using the Cost Allocator Program

SUMMARY — DEVELOPING COST ALLOCATION FACTORS

1. If this is the first time the Cost Allocator is being used, set up the Cost Allocator Title File (TGG61C). If the Title File has already been created, verify that it corresponds to your current needs.
2. Verify that the Rate File (TGG21C), Time-Of-Use File (TGY31D), and Holiday File (TGY31C) are set up properly.
3. If this is the first time the Cost Allocator is being used, set up the Cost Allocator Seasons File. If the Seasons File has already been created, verify that it corresponds to your current needs.
4. Create the Cost Allocator Environment File (TGG61B) — defines the methodologies for developing the Cost Allocation Factors.
5. Run the Cost Allocator Program (G610).
6. Check reports and other output.

Step 1: Create the Cost Allocator Title File (TGG61C)

Typically, you will create the Title File once and modify it occasionally. If this file has already been set up, continue to Step 2. If not, read on.

You use the Cost Allocator Title File to assign the first two header lines on the Cost Allocation Reports. Although the same two headings will appear on all of these reports, along with other heading information generated automatically by the Cost Allocator program, you will need to enter them only once.

If you choose to omit information for the first heading line, it will contain only a report number at the left margin. If you omit information for the second line, it will contain only the run date at the left margin.

There are only two valid commands used in creating the Cost Allocator Title File; these are shown below.

TTL1	text
TTL2	text

Here is a Sample Cost Allocator Title File.

File:	TGG61C.DATA
TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY
TTL2	COST ALLOCATION FACTORS

Step 2: Ensure the Files are Set Up Properly

Make certain the Rate File (TGG21C), Time-Of-Use File (TGY31D), and Holiday File (TGY31C) are set up properly. See **Chapter 4: Setting Up**.

Step 3: Set up the Season File (TGG61D)

Refer to the **Oracle Utilities Load Analysis Load Data Management User's Guide**, Chapter 5 "How to Create the Season File".

Step 4: Create the Cost Allocator Environment File (TGG61B)

The Environment File enables you to define how Cost Allocation Factors are to be calculated as well as some aspects of how the reports will be printed. This file is created with ten commands:

DATE <i>start-date1 stop-date1</i> [<i>start-date2 stop-date2</i>]
SOURCE [GLDB]
VERSION [<i>n</i> <u>0</u>]
TITLE <i>text</i>
GROUP [PRMS GNR1 GNR2]
CUSTOMER [AVERAGE MONTH <i>month-name</i>
INPUT <i>rate-class-prefix1 pop1</i>
<i>rate-class-prefix2 pop2</i>
<i>rate-class-prefixN popN</i>
END]
DEMAND [CD <i>n</i> NCP AVE <i>n</i> EOM <i>n</i> ALL <i>n</i> SEP [<i>n</i> <u>1</u>]

PEAk *mm/dd/yy—hh:mm*

PAGe [*n* | 0]

SCHedule [*n* | 0]

SEAson [*n* | 0]

DATE *start-date1 stop-date1* [*start-date2 stop-date2*]

- **Date** — A required command. Enter the start-date1 and top-date1 of the desired reporting period. If a split reporting period is desired, a second start-date and stop-date (both of which must be later than the first stop-date) may be entered. A start-date must be the first day of a month; a stop-date must be the last day of a month. If you do not follow this rule, the program will adjust your start- and stop-dates appropriately.

SOURce [**GLDB**]

- **Source** — Specify the database from which you will read data in developing Customer Cost Allocation Factors. The default is GLDB.

VERsion [*n* | 0]

- **Version-number** — Use this field to identify which test version you want to read. The default value is “0”.

TITLe *text*

- **Title** — An optional field, which you may use to describe the version. You can use the entire line.

GROup [**PRMS** | **GNR1** | **GNR2**]

- **Group** — Specify the level of data on which you want to develop Cost Allocation Factors. The default value is GNR2. Your options are:
 - *PRMS* — Premise Level Data
 - *GNR1* — Generator Level 1 Data
 - *GNR2* — Generator Level 2 Data.

CUStomer [**AVERage** | **MONth** *month-name* |

INPut *rate-class-prefix1 pop1*

rate-class-prefix2 pop2

rate-class-prefixN popN

END]

- **Customer** — Specify what rate class and system customer populations you wish to use in developing Customer Cost Allocation Factors. The default is AVERAGE. Your options are:
 - *AVERAGE* — The average population over all months in the date range will be used.
 - *MONTH* — The population for the specified month will be used. If MONTH is entered, it must be followed by a month name, which may be abbreviated to its first three letters.
 - *INPUT* — This option allows you to input rate class populations from any source, including hypothetical models, by specifying each rate-class-prefix, followed by the

population to be associated with it, on successive lines of Environment File, beginning with the INPUT command line itself.

Each rate-class-prefix/population pair may be entered anywhere on its line (after the INPUT command, in the case of the first), with the population figure following the rate-class-prefix and separated from it by at least one blank. The rate classes may be input in any sequence. The last rate-class-prefix/population pair must be followed by the delimiting command END on a separate line. Population should not be entered for the System record or any subtotals. Their populations will be calculated by the program.

DEMAND [CD <i>n</i> NCP AVE <i>n</i> EOM <i>n</i> ALL <i>n</i> SEP [<i>n</i> 1]]

- **Demand** — Specify which Demand Cost Allocation Factors the Cost Allocator is to develop, how many months' System Peak Demands are to be used in developing Coincident Demand factors, and how to print the results. The default is to develop both Coincident Demand and Non-Coincident Peak factors using one highest month's System Peak Demand, and to print them in separate reports. Your options are:
 - *CD N* — Develop Coincident Demand Cost Allocation Factors only. The Coincident Demand Cost Allocation Factors are calculated for each rate class and sub-class group by dividing the Coincident Demand for each by the System's peaks. A factor is developed for each by time-of-use period. If the date range is for more than one month, then the N highest monthly System peaks are averaged and each rate class or customer's coincident demands are averaged prior to dividing the Coincident Demand by the System peak. If N is not specified, the Cost Allocator uses data for the one highest System Peak. If the N specified exceeds the number of months in the date range, averages over all months in the date range are used and an informational message is produced.
 - *NCP* — Develop Non-Coincident Peak Cost Allocation Factors only. Each rate class (with no sub-class groups), sub-class group, and customer's highest Non-Coincident Peak over the date range is used. This figure is divided by the sum of such peaks yielding a Cost Allocation percentage.
 - *AVE N* — Develop Average and Excess Cost Allocation Factors only. For each rate class, sub-class, and customer, the average is calculated as the total energy in the date range divided by the number of hours over the range. The excess system demand (difference of system peak and average) is allocated over each rate class, etc. based on the proportion of each rate class (without sub-class groups), sub-class group, and special customer's contribution to the sum of excess demand. Average and excess demand is combined and converted into percentages. If N is specified, the N highest monthly system peaks are averaged. If N is not specified the Cost Allocator program uses the highest system peak. If the N specified exceeds the number of months in the date range, averages over all months in the range are used and a warning message is produced.
 - *EOM N* — Develop Excess Over Minimum Cost Allocation Factors only. For each Time-Of-Use period, the average of N months' SMCD statistics at the times of the N lowest entire-period demands is multiplied by the number of hours for that period in the date range or season, giving minimum sales. This figure is subtracted from the total energy use for the period giving sales over minimum, which is then divided by the number of hours in the period to give the average hourly demand over minimum. Percentage factors are calculated for each Time-Of-Use period's excess demand over minimum in relation to that of the entire period. If a season schedule is used, a percentage is calculated for each entire-period in relation to the entire-period of the complete analysis period. Excess Over Minimum Cost Allocation Factors are developed for the System rate only. If N is specified, the average of the N lowest monthly entire-period system minimums is used in these calculations. If N is not specified, the lowest monthly entire-period system minimum is used. If the N specified exceeds the number of months in the analysis period (including all seasons), the average over all months in the analysis period is used and an information message is produced.

- *ALL N* — Develop Coincident Demand, Non-Coincident Peak, Average and Excess, and Excess Over Minimum Cost Allocation Factors. Print CD and NCP figures in a single combined report. N is the number of monthly peaks to average for the Coincident Demand Allocation Factor, and the number of system minimums for the Excess Over Minimum Factor.
- *SEP N* — Develop Coincident Demand, Non-Coincident Peak, Average and Excess, and Excess Over Minimum Cost Allocation Factors. Print the CD and NCP figures in separate reports. N is the number of peaks to average for the Coincident Demand Allocation Factor, and the number of system minimums for the Excess Over Minimum Factor.

PAGe [*n* | 60]

- **Page** — Specify the number of lines to print per page. Sixty lines is the default.

PEAk *mm/dd/yy—hh:mm*

- **Peak** — Enter a Supplied Peak date and time. Up to 12 Peak commands may be used. These are peak times supplied directly by the user based on outside information, rather than calculated by the program. If one or more Peak commands are entered, the program will develop and report an additional set of Supplied Peak Demand cost allocation factors based on the average of each rate's demands at the times supplied. If a Season File is being used, these factors are omitted for any Season that does not contain any of the Supplied Peaks.

SEAson [*n* | 0]

- **Season** — Use the Season command to specify one of the schedules in the Season File. If a Season File is specified, the program will develop separate Cost Allocation Factors (except for the Customer Cost Allocation Factor) for each season using the Time-Of-Use Schedule specified for it in the Season File.

Note: You can use either the Season or the Schedule command in the Environment File, but not both. If for some reason you include both in the Environment File, the program will use the Season command.

If you use 0 for both commands (the default), the program will produce allocators for the entire period only (rather than for on peak and off peak periods as well).

SCHedule [*n* | 0]

- **Schedule** — If you are not using the Season Command, you can use the Schedule Command to specify one of the Time-of-Use Schedules in the Time-Of-Use File. (In other words, use this command if you want the same TOU Schedule to be applied to all months in the analysis period.)

Whether through the Schedule Command or the Season File, for any given month you must specify the number of the Time-Of-Use Schedule under which the data was developed. For example, if you are developing GNR2 Cost Allocation Factors and GNR2 data was created using schedule 1, then schedule 1 must be used by this program for the corresponding time period.

Following is a sample Cost Allocator Environment File.


```

File:   TGG61B DATA
DATE 04/01/99 05/31/99
SOURCE GLDB
VERSION 1
GROUP PRMS
SCH 1
CUS INP  RGEN      69902
          RESH      17909
          G060      85576
          G602       676
          G200      2291
          SCHP       468
          STLITE     575
          PTLITE     200
          ABCST      1
          XYZRR      1
          IDS        1
          MISC       1
          TCP        1

END
DEM SEP 2

```

Step 5: Run the Cost Allocator Program (G610)

Use G610 to issue the job.

Step 6: Check Output

At the end of its run, the program will produce the specified reports, along with other standard reports, and an output data file.

- **An Environment File Report** — Describes the processing mode in effect during the program execution.
- **A Rate File Report** — Reports the Rate File being used.
- **A Customer Cost Allocation Factors Report** — The report showing the customer cost allocation factors for each rate class.
- **An Energy Cost Allocation Factors Report** — The report showing the energy cost allocation factors for each rate class, and for each season if a season schedule was specified.
- **The Demand Cost Allocation Factors Report(s)** — The report(s) showing the demand cost allocation factors for each rate class (except the Excess Over Minimum cost allocation factor which is developed only for the entire system), and for each season if a season schedule was specified.
- **A Cost Allocation Output File** — In addition to these reports, the program will produce an output file of selected data, which may be used in a spreadsheet for further studies.

Cost Allocator Output File

The Cost Allocator Output File is a data file containing the Cost Allocation Factors. This file may be down loaded to a spreadsheet for further study.

The Cost Allocator Output File consists of fixed-length records with a length of 132 bytes.

There are eight record types: three File Header Records, three Season Header Records (only if a Season Schedule is used), the Energy Record, the Coincident Demand Record, the Non-Coincident Peak Record, the Average And Excess Record, and the Excess Over Minimum Record, and the Supplied Peak Record. All numeric data in the file is represented in numeric character (picture) format. Picture format stores numbers in human readable format.

Table 12-1: Cost Allocator Output File Record Format

FILE HEADER RECORD

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'HDR'
#RATES	PIC '9999'	Number of Rate classes, including System and subtotals, profiled in this file
#TOU	PIC '99'	Number of Time-of-Use periods
START-DATE	PIC '999999'	First date in date range (MMDDYY)
STOP-DATE	PIC '999999'	Last date in date range (MMDDYY)
DATA LEVEL	CHAR (4)	Level of data used (PRMS, GNR1, or GNR2)
DEM MON#	PIC '99'	Number of months over which System Peak Demand was averaged
SCHEDULE#	PIC '99'	Time-of-Use schedule being used, or 0 if season schedule is used
IPH	PIC '999'	Intervals Per Hour
VERSION	PIC '9'	Test data version used for this run
UOM	CHAR (2)	Unit of Measure used (KW or MW) - from Rate File
DECIMALS	PIC '9'	Number of assumed decimal places in amount fields (from Rate File)
SYSTEM PEAKS (12)	PIC '999999'	
DATE	PIC '99'	MMDDYY of System Peak
HOUR		Hour Ending (1-24)
ENDING		Note: The number of these pairs of fields containing actual data will be = DEM MON#;; the rest will be zero-filled.
		If season processing is done, these fields are zero-filled, and separate system peak data is written for each season in Season Header Record 3.

FILE HEADER RECORD 2

Field Name	Format, Length	Contents
-------------------	-----------------------	-----------------

FILE HEADER RECORD 2

RECORD ID	CHAR (3)	'HD2'
#RANGES	PIC '99'	Number of Date Ranges (1 to 2)
START-DATE-2	PIC '999999'	Start date in second date range (MMDDYY), or 0 if # RANGES = 1
STOP-DATE-2	PIC '999999'	Stop date in second date range (MMDDYY), or 0 if # RANGES = 1
SEASON	PIC '99'	The Season Schedule used, or 0 if none used
SCHEDULE	PIC '99'	The number of distinct seasons contained in the analysis period, or 0 if Season Schedule is not used.
SEASON COUNT		
	PIC '999999'	MMDDYY of System Minimum
SYSTEM MINIMUMS (12)	PIC '99'	Hour Ending (1-24)
DATE		Note:The number of these pairs of fields con- taining actual data will be = DEM MON#;
HOUR		the rest will be zero-filled.
ENDING	CHAR(13)	Blanks
FILLER		

FILE HEADER RECORD 3

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'HD3'
#SUPP-PEAKS SUPPLIED	PIC '99'	Number of Supplied Peaks
PEAKS(12)	PIC '999999'	MMDDYY of this Supplied Peak
DATE	PIC '99'	Hour Ending (1-24)
HOUR	CHAR(13)	Blanks
ENDING		
FILLER		

SEASON HEADER RECORD 1

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'SH1'
SEASON-NUMBER-1	PIC '99'	Season number from the Season File (1-9)
SEASON #TOU	PIC '99'	Number of Time-of-Use periods in this season.
SEASON RANGES (10)	PIC '999999'	First date in a portion of this season (MMDDYY)
SEASON-STAR	PIC '999999'	Last date in a portion of this season (MMDDYY)
RT-DATE	CHAR(5)	Blanks
SEASON-STOP		
P-DATE		
FILLER		

SEASON HEADER RECORD 2

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'SH2'
SEASON-NUMBER-2	PIC '99'	Season number(same as Season-Number-1) (Filled only if there are more than 10 portions of this season.)
SEASON RANGES (2)	PIC '999999'	First date in a portion of this season
SEASON-STAR	PIC '999999'	(MMDDYY)
T-DATE	PIC '99'	Last date in a portion of this season (MMDDYY)
SEASON-STOP		Number of Supplied Peaks in this Season
-DATE	PIC '999999'	
#SEASON-SUPP-PEAKS	PIC '99'	MMDDYY of this Supplied Peak
SEASON SUPPLIED	CHAR(5)	Hour Ending (1-24)
PEAKS(12)		Blanks
DATE		
HOUR		
ENDING		
FILLER		

SEASON HEADER RECORD 3

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'SH3'
SEASON-NUMBER-2	PIC '99'	Season number (same as Season-Number-1)
SEASON NAME	CHAR(30)	Name of season from Season File
SYSTEM PEAKS	PIC '999999'	MMDDYY of monthly System Peak for this season
(12)	PIC '99'	Hour Ending (1-24)
DATE		Note: The number of these pairs of fields
HOUR		containing
ENDING		actual data will be = DEM MON#,
		unless there are fewer months in this
		season, in which case only that lesser
		number of pairs will be filled; the rest
		will be zero-filled.
	CHAR(1)	Blanks
FILLER		

ENERGY RECORD

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'NRG'
RATE CLASS	CHAR (6)	Rate class prefix for which this record contains data
TOU	PIC '99'	Time-of-Use period for which this record contains data
ENERGY AMOUNT	PIC length 12 *See note	Total Energy use for this Rate and Time-of-Use period
ENERGY SEASON	CHAR (107)	Season number for which this record contains data, zero-filled if season processing is not being done.
FILLER		Blanks

COINCIDENT DEMAND RECORD

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'CD'
RATE CLASS	CHAR (6)	Rate class prefix for which this record contains data
TOU	PIC '99'	Time-of-Use period for which this record contains data
CD AMOUNT	PIC length 12 *See note	Average Coincident Demand for this Rate and Time-of-Use period (averaged over DEM MON# months of highest System Peak)
CD SEASON	PIC '99'	
FILLER	CHAR (107)	Season number for which this record contains data, zero-filled if season processing is not being done. Blanks

NON-COINCIDENT PEAK RECORD

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'NCP'
RATE CLASS	CHAR (6)	Rate-class-prefix for which this record contains data
TOU	PIC '99'	Time-of-Use period for which this record contains data
NCP DATE	PIC '999999'	Time-of-Use period for which this record contains data
NCP HOUR	PIC '99'	MMDDYY the Peak occurred
NCP AMOUNT	PIC, length 12*	Hour Ending (1 - 24) of the Peak
NCD SEASON	PIC '99'	Highest Non-Coincident Peak for this Rate and Time-
NCP FILLER	CHAR(99)	of-Use period over the entire Date Range Season number for which this record contains data, zero-filled if season processing is not being done. Blanks

NON-COINCIDENT PEAK RECORD

*NOTE: The amount fields marked with an asterisk are written to the file using a variable number of implied decimal places. This number is determined by the #DEC value entered in the Rate File, is the same as the number of decimal places shown on the Cost Allocation Reports, and is given in the DECIMALS field of the Header Record. Thus, if DECIMALS contains the value 03, the actual format for ENERGY AMOUNT would be PIC '(9)9V999'

AVERAGE AND EXCESS RECORD

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'AVE'
RATE CLASS	CHAR (6)	Rate-class prefix for which this record contains data
TOU	PIC '99'	data
NCP DATE	PIC '999999'	Time-of-Use period for which this record contains data
NCP HOUR	PIC '99'	data
NCP AMOUNT	PIC, length 12*	MMDDYY the Peak occurred Hour Ending (1 - 24) of the Peak
A&E AMOUNT	PIC, length 12	Highest Non-Coincident Peak for this Rate and Time-
ENERGY AMOUNT	PIC, length 12	of-Use period over the entire Data Range
A&E SEASON	PIC '99'	Average and Excess Amount Total Energy for Rate and TOU Period
FILLER	CHAR (75)	Season number for which this record contains data, zero-filled if season processing is not being done. Blanks

EXCESS OVER MINIMUM RECORD

Field Name	Format, Length	Contents
RECORD ID	CHAR (3)	'EOM'
RATE CLASS	CHAR (6)	System class (this record written for System only).
TOU	PIC '99'	Time-of-Use period for which this record contains data.
AVERAGE MINIMUM	PIC, length 12*	The Average minimum demand for this Time-of-Use period (average of DEM MON# lowest system minimum demands).
MINIMUM SALES	PIC, length 12*	Product of the above and the number of hours for this Time-of-Use period (in this season, if season processing is being done).
SALES OVER MIN. AVG. EXCESS OVER MINIMUM TOU HOURS	PIC, length 12*	Difference between actual sales and the above field. The above field divided by the number of hours in the Time-of-Use periods.
EOM SEASON	PIC '9999'	The number of hours in this Time-of-Use period (and within this season, if season processing is being done),
FILLER	PIC '99'	used in calculating the above fields. Season number for which this record contains data, zero-filled if season processing is not being done. Blanks
	CHAR (67)	

EXCESS OVER MAXIMUM RECORD

Field Name	Format, Length	Contents
RECORD ID	CHAR(3)	'SUP'
RATE CLASS	CHAR(6)	R
TOU	PIC '99'	
SUPP. AMOUNT	PIC, length 12*	
SUPP. SEASON	PIC '99'	
FILLER	CHAR(107)	

Chapter 13

Generating Reports

COSI offers three programs for generating reports:

- **The Summary Reporter** — lists the contents of the GLDB or RLDB and database statistics. Reports generated with this program are useful for database maintenance.
- **Rates Reporter** — generates daily or monthly reports on load data and statistics at each level of data development (Initial, Premise, Generator 1, Generator 2, and Losses). Daily reports show demand for each class, sub-class, or customer in the Rate File, along with statistics on Average Weekday and Average Weekend. Monthly reports show energy for each class on each day of the month, as well as statistics for Coincident Peak, Maximum Hourly Demand, and Minimum Hourly Demand.

This program also generates reports on the Rate File and Time-of-Use Schedules.

- **Time Series Reporter (GLDB)** — reports user-specified groups of statistics or load data records in a tabular (columns and rows) format. Data for each selected record is reported in a single column; each row represents a different hour or time period. This program is especially useful for comparing different statistics across time — even those produced by different Cost of Service programs. An optional file can be created for input to user-written programs.

This chapter provides detailed instructions for applying each of these three programs.

Steps for Using the Summary Reporter Program

Refer to Chapter 13, The Summary Reporter, in the *Oracle Utilities Load Analysis Load Data Analysis User's Guide*.

Steps for Using the Rates Reporter Program

SUMMARY — GENERATING REPORTS WITH THE RATES REPORTER

1. If this is first time the Rates Reporter being used, set up the Title File (TGG41C). If the Title File has already been created, verify that it corresponds to your current needs.
2. Verify that the Rate File (TGG21C), Time-of-Use File (TGY31D), and Holiday File (TGY31C) are set up properly.
3. Create the Reporter Environment File (TGG41B) — select the types of reports you want to produce.
4. Run the Rates Reporter Program (G410)

Step 1: Create the Title File (TGG41C)

Typically, you will create the Title File once and modify it only occasionally. If this file has already been set up, continue to Step 2. If not, read on. The Title File enables you to define what titles and comments you want on each of the different reports. This file is created with the following commands:

DAILY
MONTHLY
INIT
PRMS
GNR1
GNR2
LOSS
AWD
AWE
DEMAND
CD
ENERGY
MAXIMUM
MINIMUM
TTLn text
COMn text

- **Daily** — Puts the following titles and comments on daily reports. It will do this for all commands until the command “MONTHLY” is found. Titles and comments immediately following this command will be put on all daily reports.
- **Monthly** — Puts the titles and comments on monthly reports. It will do this for all commands until the command “DAILY” or the end of file. Titles and comments immediately following this command will be put on all monthly reports.
- **INIT** — Any comments or titles immediately following this command will be put on Initial Level data reports.
- **PRMS** — Any comments or titles immediately following this command will be put on Premise Level data reports.
- **GNR1** — Any comments or titles immediately following this command will be put on Generator Level 1 data reports.

- **GNR2** — Any comments or titles immediately following this command will be put on Generator Level 2 data reports.
- **LOSS** — Any comments or titles immediately following this command will be put on all losses reports.
- **AWD** — This is valid for daily reports only. Any comments or titles immediately following this command will be put on the average weekday report for all levels of data. (i.e., Initial, Premise, Generator 1, Generator 2, and Losses).
- **AWE** — This is valid for daily reports only. Any comments or titles immediately following this command will be put on the average weekend report for all levels of data.
- **HWN** — This is valid for daily reports only. Any comments or titles immediately following this command will be put on the average holiday and weekend report for all levels of data.
- **Demand** — This is valid for daily reports only. Any comments or titles immediately following this command will be put on the demand reports for all levels of data.
- **CD** — This is valid for monthly reports only. Any comments or titles immediately following this command will be put on the coincident demand report for all levels of data.
- **Energy** — This is valid for monthly reports only. Any comments or titles immediately following this command will be put on the energy report for all levels of data.
- **Maximum** — This is valid for monthly reports only. Any comments or titles immediately following this command will be put on the maximum hourly demand report for all levels of data.
- **Minimum** — This is valid for monthly reports only. Any comments or titles immediately following this command will be put on the minimum hourly demand report for all levels of data.
- **TTLn** — This is the title line. n may be any number 1 through 7. Text is the actual title. Any quotes used will be displayed on the report. This command can be used with any of the above commands.
- **COMn** — This is the comment line. n may be any number 1 through 5. Text is the actual comment. Any quotes used will be displayed on the report. This command can be used with any of the above commands.

Following is a Sample Title File.

```

File: TGG41C DATA
DAILY
TTL1 MUNICIPAL GAS AND ELECTRIC COMPANY
TTL2 ESTIMATED COMPONENTS OF CONTRACT LOAD
TTL5 DEMANDS IN MW
INIT
TTL3 INITIAL DATA
PRMS
TTL3 ADJUSTED FOR - SAMPLING ERROR
GNR1
TTL3 ADJUSTED FOR - SAMPLING ERRORS AND SYSTEM LOSSES
GNR2
TTL3 ADJUSTED FOR - SAMPLING ERRORS, SYSTEM LOSSES, AND
COMPANY USE
LOSS
TTL3 SYSTEM LOSSES
TTL5 DEMANDS IN KILOWATTS
AWD
TTL4 TYPICAL (AVERAGE) WEEKDAY
AWE
TTL4 TYPICAL (AVERAGE) WEEKEND

MONTHLY
TTL1 MUNICIPAL GAS AND ELECTRIC COMPANY
TTL2 ESTIMATED COMPONENTS OF CONTRACT LOAD
TTL5 DEMANDS IN MW
INIT
TTL3 INITIAL DATA
PRMS
TTL3 ADJUSTED FOR - SAMPLING ERROR
GNR1
TTL3 ADJUSTED FOR - SAMPLING ERRORS AND SYSTEM LOSSES
GNR2
TTL3 ADJUSTED FOR - SAMPLING ERRORS, SYSTEM LOSSES, AND
COMPANY USE
LOSS
TTL3 SYSTEM LOSSES
MAX
TTL4 MAXIMUM HOURLY DEMAND
MIN
TTL4 MINIMUM HOURLY DEMAND
CD
TTL4 COINCIDENT VALUES
ENE
TTL4 TOTALS
TTL5 ENERGY IN MWH
    
```

Figure 13-1 Sample Title File

What Does the Title File Do?

Following is additional information about constructing Title Files. If you have already created the Title File, go to **Step 2: Ensure the Files are Set Up Properly** on page 13-8.

You use the Title File to tell COSI what headings and comments to put on Daily and Monthly reports. This file has been designed to enable you to assign report headings and comments with a minimum amount of effort. More specifically, although the same title or comment line may appear on many different reports, you will need to enter the line only once.

Before inputting records to the Title File, you should have a good idea what these reports will contain and know exactly what you want to label them. You may want to look at the sample reports at the end of this chapter to get some ideas.

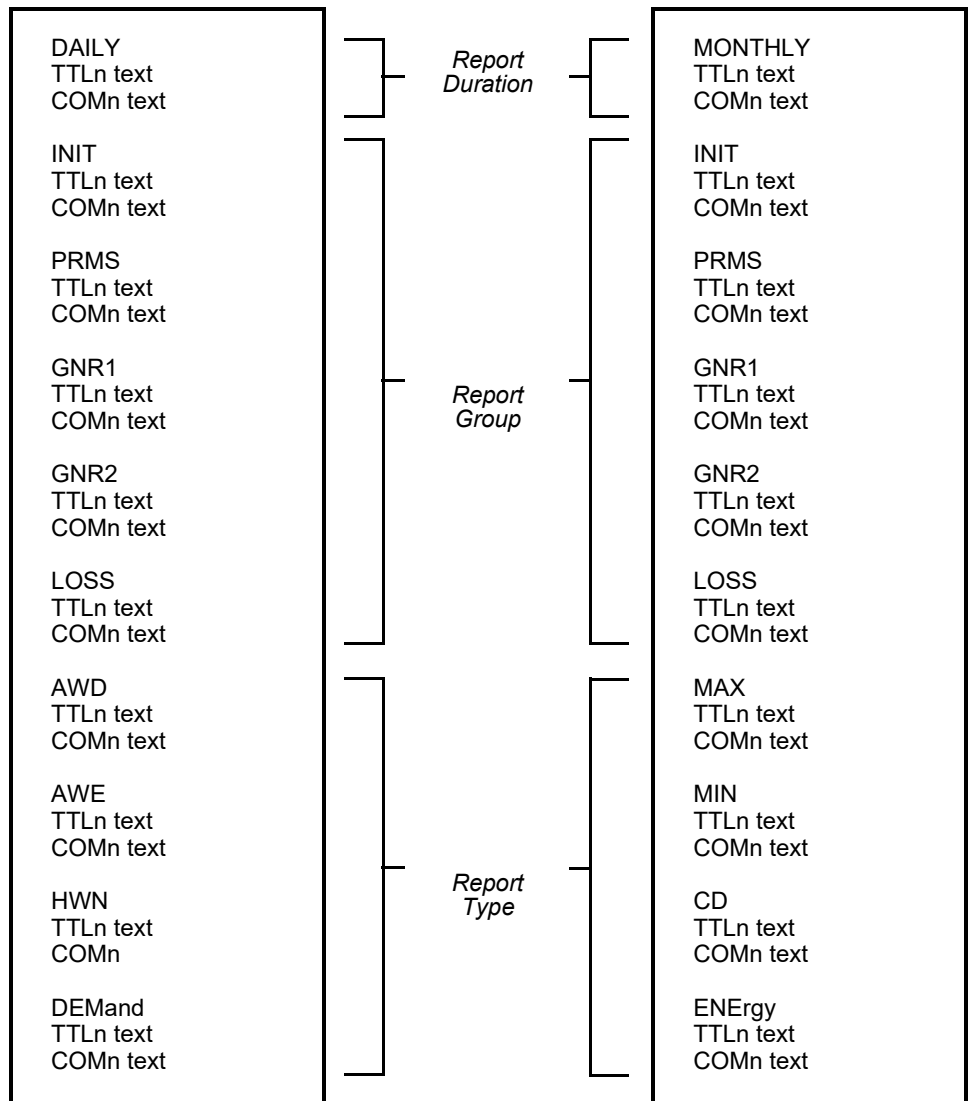
How Does the Title File Work?

COSI assigns titles and comments to each output report according to a combination of commands from three categories: Duration, Group, and Type.

- **Report Duration** — Reports are either Daily or Monthly.
- **Report Group** — Represents different levels of data development (Initial, Premise, Generator 1, Generator 2, Loss).
- **Report Type** — Represents different data types (Demand, Energy, Average Weekday, Average Weekend, Average Holiday and Weekend, Coincident Peak, Maximum Hourly, Minimum Hourly).

The formats for actually creating the Title File are shown at right. (This is another way of visualizing the file commands, as described under **Steps for Using the Rates Reporter Program** on page 13-2.) In creating the file, enter one command or statement per line, as illustrated in the sample Title File shown in Figure 13-1.

- For Daily Reports
- For Monthly Reports



Each report can have up to seven title lines and five comment lines. The title lines will be printed at the top of the report; comments at the bottom.

The order in which the titles or comments print on the report is dictated by the number in front of the text line in the Title File. For example, a text line preceded by “TTL1” in the Title File will print on the top line of the report; a text line preceded by “TTL2” will print on the second line of the report, and so on.

- **Report Duration** — Any titles or comments in this category will print on all reports (i.e., if you enter “TTL1 MUNICIPAL GAS AND ELECTRIC COMPANY” under the DAILY command in the file, “MUNICIPAL GAS AND ELECTRIC COMPANY” will appear as the first title on all daily reports.)
- **Report Group** — Any title or comments you enter under a Report Group heading will appear on all reports dealing with that group. For example, if you enter “TTL3 INITIAL DATA” under “INIT”, reports on Initial Data for Average Weekend, Average Weekday, Average Holiday and Weekend, and Demand will all have “INITIAL DATA” as the third line of their title.
- **Report Type** — Any title or comment you enter under a Report Type will appear on all reports dealing with that data type. (For example, if you enter “TTL 4 AVERAGE WEEKEND” under “AWE”, reports on Initial Data for Average Weekend, Premise Data for Average Weekend, and Generator Level Data for Average Weekend will all have “AVERAGE WEEKEND” as the fourth line of their title.

The order in which COSI assigns titles is determined by category — Report Duration titles are assigned first, then Report Group, then Report Type. If there is any overlap — for example if you were to enter a “TTL3” line under a Report Type when there was already a TTL3 line under a Report Group — COSI will use the last assignment. In other words, Type overwrites Group, which overwrites Duration.

Note about monthly reports: COSI will automatically take the 30-character comment field from the Time-of-Use File and print it after your TTL4 entry on monthly reports.

To understand how COSI assigns titles and comments, it may help to visualize the reporting options in terms of two matrices, one for each of the two major kinds of reports — daily and monthly. (Note: you don’t actually create these matrices... rather, you create the Title File and COSI assigns the titles and comments according to the logic represented by these matrices.) As shown on the next two pages, the matrices are formed with Report Group along one axis, and Report Type along the other. (Note also that these matrices illustrate how COSI deals with Type and Group headings; each report also has major headings assigned according to whether it’s monthly or daily.) Each box in a matrix represents a different type of report produced by COSI. Inside each box is a set of sample titles that might be used for that report. Sample reports produced with these titles are included at the end of this chapter.

Table 13-2: Daily Report Matrix

REPORT GROUP	REPORT TYPE					
	AVERAGE WEEKDAY		AVERAGE WEEKEND		DEMAND	
INIT	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD
	TTL2	INITIAL DATA	TTL2	INITIAL DATA	TTL2	INITIAL DATA
	TTL3	TYPICAL (AVERAGE) WEEKDAY DEMANDS IN MW	TTL3	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW	TTL3	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW
	TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5	
PRMS	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR
	TTL2	TYPICAL (AVERAGE) WEEKDAY DEMANDS IN MW	TTL2	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW	TTL2	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW
	TTL3		TTL3		TTL3	
	TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5	
GNR1	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR AND SYSTEM LOSSES	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR AND SYSTEM LOSSES	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR AND SYSTEM LOSSES
	TTL2	TYPICAL (AVERAGE) WEEKDAY DEMANDS IN MW	TTL2	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW	TTL2	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW
	TTL3		TTL3		TTL3	
	TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5	
GNR2	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACTLOAD ADJUSTED FOR SAMPLING ERRORS, SYSTEM LOSSES, AND COMPANY USE	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERRORS, SYSTEM LOSSES, AND COMPANY USE	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERRORS, SYSTEM LOSSES, AND COMPANY USE
	TTL2	TYPICAL (AVERAGE) WEEKDAY DEMANDS IN MW	TTL2	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW	TTL2	TYPICAL (AVERAGE) WEEKEND DEMANDS IN MW
	TTL3		TTL3		TTL3	
	TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5	
LOSS	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD
	TTL2	SYSTEM LOSSES	TTL2	SYSTEM LOSSES	TTL2	SYSTEM LOSSES
	TTL3	TYPICAL (AVERAGE) WEEKDAY DEMANDS IN KILOWATTS	TTL3	TYPICAL (AVERAGE) WEEKEND DEMANDS IN KILOWATTS	TTL3	TYPICAL (AVERAGE) WEEKEND DEMANDS IN KILOWATTS
	TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5	

COSI produces Daily reports for Average Weekday, Average Weekend, Average Holiday and Weekend, and Demand at each level of data development.

This diagram is a conceptual representation of how entries in the Title File create headings on each type of Daily report. A sample Title File set up according to this arrangement is reproduced in Figure 13-1.

Table 13-3: Monthly Report Matrix

REPORT GROUP	REPORT TYPE							
	MAXIMUM HOURLY DEMAND		MINIMUM HOURLY DEMAND		COINCIDENT DEMAND		ENERGY	
INIT	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD
	TTL2	INITIAL DATA	TTL2	INITIAL DATA	TTL2	INITIAL DATA	TTL2	INITIAL DATA
	TTL3	MAXIMUM HOURLY DEMAND	TTL3	MINIMUM HOURLY DEMAND	TTL3	COINCIDENT VALUES	TTL3	TOTALS
	TTL4	DEMANDS IN MW	TTL4	DEMANDS IN MW	TTL4	DEMANDS IN MW	TTL4	ENERGY IN MWH
	TTL5		TTL5		TTL5		TTL5	
PRMS	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD ADJUSTED FOR SAMPLING ERROR
	TTL2	MAXIMUM HOURLY DEMAND	TTL2	MINIMUM HOURLY DEMAND	TTL2	COINCIDENT VALUES	TTL2	TOTALS
	TTL3	DEMANDS IN MW	TTL3	DEMANDS IN MW	TTL3	DEMANDS IN MW	TTL3	ENERGY IN MWH
	TTL4		TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5		TTL5	

Table 13-3: Monthly Report Matrix

REPORT GROUP	REPORT TYPE							
	MAXIMUM HOURLY DEMAND	MINIMUM HOURLY DEMAND	COINCIDENT DEMAND	ENERGY				
GNR1	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD
	TTL2	ADJUSTED FOR SAMPLING ERROR AND SYSTEM LOSSES	TTL2	ADJUSTED FOR SAMPLING ERROR AND SYSTEM LOSSES	TTL2	ADJUSTED FOR SAMPLING ERROR AND SYSTEM LOSSES	TTL2	ADJUSTED FOR SAMPLING ERROR AND SYSTEM LOSSES
	TTL3	MAXIMUM HOURLY DEMAND DEMANDS IN MW	TTL3	MINIMUM HOURLY DEMAND DEMANDS IN MW	TTL3	COINCIDENT VALUES DEMANDS IN MW	TTL3	TOTALS ENERGY IN MWH
	TTL4		TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5		TTL5	
GNR2	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD
	TTL2	ADJUSTED FOR SAMPLING ERRORS, SYSTEM LOSSES, AND COMPANY USE	TTL2	ADJUSTED FOR SAMPLING ERRORS, SYSTEM LOSSES, AND COMPANY USE	TTL2	ADJUSTED FOR SAMPLING ERRORS, SYSTEM LOSSES, AND COMPANY USE	TTL2	ADJUSTED FOR SAMPLING ERRORS, SYSTEM LOSSES, AND COMPANY USE
	TTL3	MAXIMUM HOURLY DEMAND DEMANDS IN MW	TTL3	MINIMUM HOURLY DEMAND DEMANDS IN MW	TTL3	COINCIDENT VALUES DEMANDS IN MW	TTL3	TOTALS ENERGY IN MWH
	TTL4		TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5		TTL5	
LOSS	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD	TTL1	MUNICIPAL GAS AND ELECTRIC COMPANY ESTIMATED COMPONENTS OF MUNICIPAL CONTRACT LOAD
	TTL2	SYSTEM LOSSES	TTL2	SYSTEM LOSSES	TTL2	SYSTEM LOSSES	TTL2	SYSTEM LOSSES
	TTL3	MAXIMUM HOURLY DEMAND DEMANDS IN MW	TTL3	MINIMUM HOURLY DEMAND DEMANDS IN MW	TTL3	COINCIDENT VALUES DEMANDS IN MW	TTL3	TOTALS ENERGY IN MWH
	TTL4		TTL4		TTL4		TTL4	
	TTL5		TTL5		TTL5		TTL5	

COSI produces Monthly reports for Maximum Hourly Demand, Minimum Hourly Demand, Coincident Peak, and Energy at each level of data development.

This diagram is a conceptual representation of how entries in the Title File create headings on each type of Monthly report. A sample Title File set up according to this arrangement is reproduced in Figure 13-1.

Step 2: Ensure the Files are Set Up Properly

Verify that the Rate File (TGG21C), Time-of Use File (TGY31D), and Holiday File (TGY31C) are set up properly. See **Chapter 4: Setting Up**.

Step 3: Create the Reporter Environment File (TGG41B)

The Environment File enables you to define what reports you want to print. This file is created with seven commands:

```

DATE start-date stop-date
VERsion [n | Q]
DURation [BOTH | MONthly | DAIly]
GROup [ALL | [INIT][,PRMS][,GNR1][,GNR2][,LOSS] ]
TYPe [ALL | [AWD][,AWE][,CD][,DEMAND][,ENERgy][,HWN][,MAXimum][,MINimum] ]
PAGe [n | Q]
SCHedule [n | Q]

```

- **Date** — A required command. Enter the start-date and stop-date of the desired reporting period.

- **Version-number** — Use this field to identify which test version you want to print. The default value is “0”.
- **Duration** — Specify whether you wish to produce a monthly (30- or 31-day) or daily (24-hour), report or both. You can select either one or both types per run. The default value is “Daily”.
- **Group** — Specify the level of data on which you want to report. You can choose one or a combination of groups. The default value is ALL. Your options are:
 - *ALL* — All data levels
 - *INIT* — Initial Level Data
 - *PRMS* — Premise Level Data
 - *GNR2* — Generator Level 2 Data
 - *GNR1* — Generator Level 1 Data
 - *LOSS* — System losses allocated to rate classes (what was allocated to Generator Level 1 Data). Losses are always reported in kilowatts.
- **Type** — Specify the type of report you wish to print. Again, you can choose one or a combination of types. The default value is ALL. Your options are:

DAILY	MONTHLY
<ul style="list-style-type: none"> • <i>AWD</i> — Average weekday • <i>AWE</i> — Average weekend • <i>DEM</i> — Demand — Hourly values for daily reports • <i>HWN</i> — Average Holiday and Weekend • <i>ALL</i> — all report types for the specified duration 	<ul style="list-style-type: none"> • <i>CD</i> — Coincident demand • <i>ENE</i> — Energy — Total daily values for monthly reports • <i>MAX</i> — Maximum hourly demand • <i>MIN</i> — Minimum hourly demand • <i>ALL</i> — All report types for the specified duration

- **Page** — Specify the number of lines to print per page. Sixty lines is the default.
- **Schedule** — Specify the number of the Time-of-Use Schedule you want to report. “0” is the default value.

Step 4: Run the Reporter Program (G410)

Use G410 to issue the job.

Steps for Using the Time Series Reporter

Refer to **Oracle Utilities Load Analysis Load Data Analysis User's Guide**, Time Series Reporter (Y410) chapter 13.

Chapter 14

Creating Output Files using the Direct Output Program

You can use the Direct Output Program to generate output data files from the COSI database for use in other programs or systems.

For more information about the Direct Output Program, refer to the *Oracle Utilities Load Analysis Load Data Analysis User's Guide*, **Chapter 16: Making Oracle Utilities Load Analysis Data Available for External Applications (X710, Y710, X720, X740, Y720, Y740, Y780)**.

