

## Data Files to Support Proposal Preparation

This read-me file describes the data files provided to support supplier proposal preparation, and how to use them. The sections below cover five specific areas:

1. Meter-level data files for gas and electric customers
2. Pole-level data files
3. Documentation spreadsheet
4. GIS data files
5. Grid-square spreadsheet

The files discussed in this read-me file are provided separately on the CD-Roms distributed with the RFP.

### 1. Meter Level Data

There are four files that contain the meter level data, providing 4,889,699 electric meter records, and 4,135,961 gas meter records. The files are described in Exhibit 1.

#### Exhibit 1: Meter-Level Data Files

File Name	File Description
Gasmeters.zip	A zipped file containing the 4,135,961 gas meter records in Microsoft Access format.
Asciiigas.zip	A zipped file containing the 4,135,961 gas meter records in bar-delimited ASCII format
Electricmeters.zip	A zipped file containing the 4,889,699 electric meter records in Microsoft Access format.
Asciielectric.zip	A zipped file containing the 4,889,699 electric meter records in bar-delimited ASCII format

The files exclude about one percent of the meters in the PG&E service area, for one of two reasons:

- There are meters that are excluded from the scope of the automation effort, including some industrial meters that are already automated, some load research meters, and some customer-owned meters.
- There are some meters that are missing information in significant data fields (most commonly, the geocoding fields), which makes it difficult to decide how to accomplish automation.

For the purposes of this RFP, the files should be interpreted as the universe of meters that are the targets of automation.

Exhibit 2 presents the data fields provided in each individual gas and electric meter record. A number of these fields are described within Exhibit 2. However, a few data fields benefit from further explanation.

The files include four kinds of appended location information:

- The meter latitude and longitude
- The PG&E operating division
- The PG&E climate zone
- A grid square location, identifying the particular square mile of the service territory where the meter is located

Exhibits 3 through 5 illustrate the 4 climate zones and the 18 operating divisions of the PG&E service area. Since the service territory encompasses about 70,000 square miles, it is not feasible to print a map with enough detail to illustrate the location of each and every square-mile grid. However, Exhibits 6 through 8 are designed to define and clarify how the grid system works. In addition, the GIS data described in Section 4 provides a way to inspect, view, and print any or all of the grid squares in map format, using the electronic published map provided.

Exhibit 6 presents an example that illustrates the grid square numbering system for downtown San Francisco. The system consists of a row number that increases from north to south, and a column number that increases from east to west. For example, the Golden Gate Bridge connects to San Francisco in grid square 209-317. The Bay Bridge connects to San Francisco in grid square 214-318, which is south and west of the Golden Gate connection. Exhibit 7 illustrates 10,000 squares of the approximately 70,000 squares that make up the service territory. Space does not permit labeling each square in the exhibit, but rows 276 and 376 are indicated, along with columns 208 and 308. Column numbering proceeds left to right from 208 and top to bottom from 276. Finally, Exhibit 8 illustrates a map of the entire service territory, highlighting key rows and columns of grid squares. The electronic map described in Section 4 can be used to view the full detail of the grid square map.

The meter-level data includes a premise ID code that can be used to link gas and electric meters at the same location. For convenience, the meter-level data includes for each meter a count of total electric and total gas meters at the meter premise.

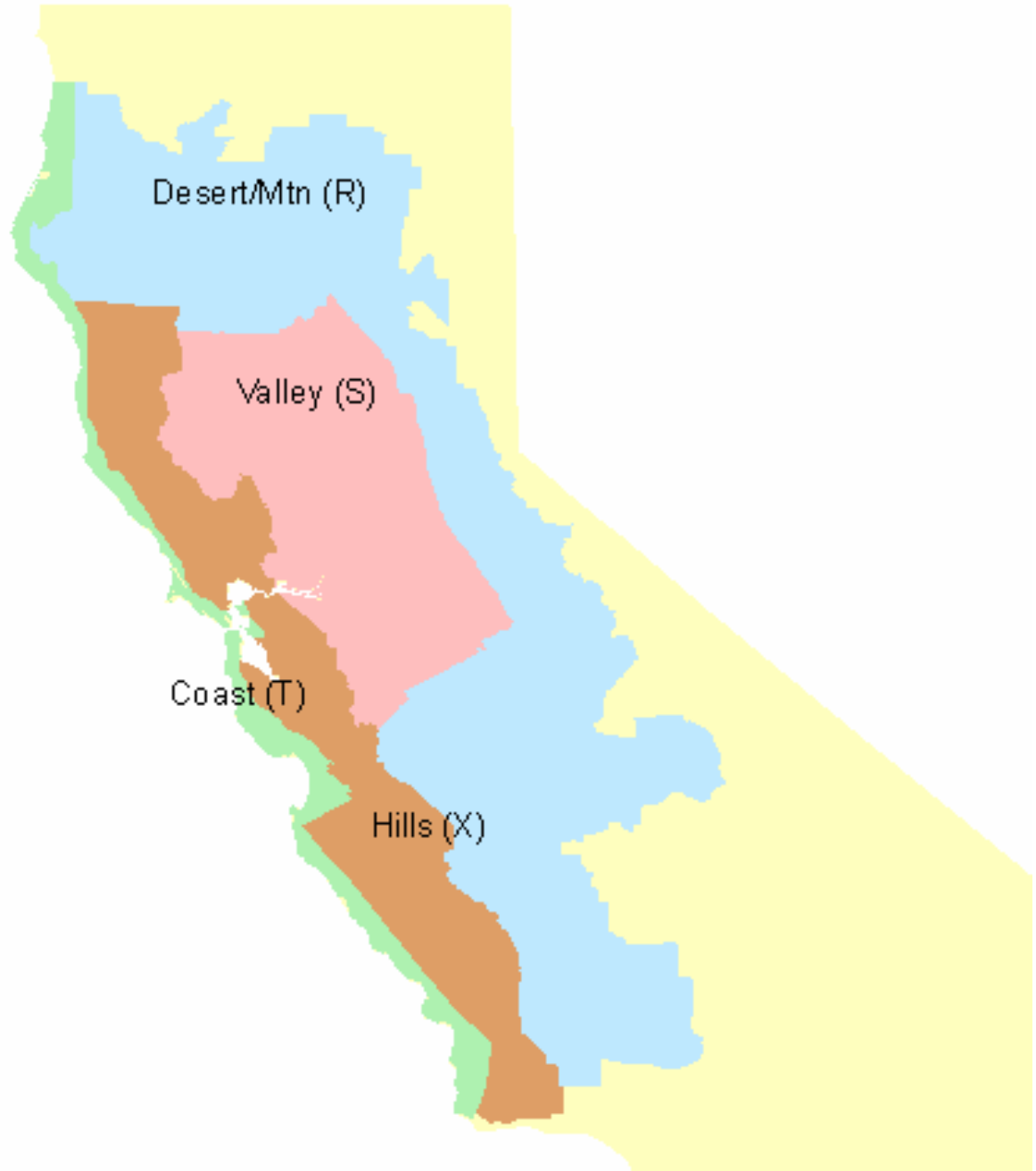
For each gas and electric meter, information is provided that identifies the meter manufacturer, the meter model, and the meter age. Additional fields specific to either gas or electric meters are provided that further describe the meters.

For electric meters only, fields are provided to identify the substation, substation bus, and substation feeder connected to the meter, as well as the distribution transformer connected to the meter.

**Exhibit 2: Data Fields Provided on the Individual Gas and Electric Meter Records**

Electric Meter Data Field	Gas Meter Data Field	Field Description	Field Name	Record Count Provided for Unique Field Values	Map
					Provided
Yes	Yes	Internal PG&E code, useful for linking premises with both electric and gas service	PREM_ID		
Yes	Yes	Count of total electric meters at premise	premele		
Yes	Yes	Count of total gas meters at premise	premgas		
Yes	Yes	One of 18 operating divisions ( code)	division_cd	Yes	
Yes	Yes	One of 18 operating divisions ( full name)	division_name	Yes	Yes
Yes	Yes	One of 4 climate zones (code)	climate_cd	Yes	
Yes	Yes	One of 4 climate zones (full name)	Climate Zone	Yes	Yes
Yes	Yes	One of 70,000 possible grid square codes, corresponding to particular square miles of the PG&E system	square		Yes
Yes	Yes	Approximate latitude of the meter	latitude		
Yes	Yes	Approximate longitude of the meter	longitude		
Yes	Yes	Internal ID Code used by PG&E (Unique key)	MTR_ID		
Yes	Yes	2 character Manufacturer code	MFG_CD	Yes	
Yes	Yes	Full Manufacturer Name	Manufacturer	Yes	
Yes	Yes	Manufacturer model code	MODEL_CD	Yes	
Yes	Yes	Meter age in years, measured from August, 2004	mtr_age	Yes	
Yes		Code identifying meter functionality	EL_CAPABILITY_IND_CD	Yes	
Yes		Description of Meter functionality	Capability	Yes	
Yes		Electric Meter Class	EL_AMPS_CLASS_CD	Yes	
Yes		Electric Meter Voltage	EL_VOLTS_CH	Yes	
Yes		Number of Meter Wires of Electric Meter	EL_WIRES_CH	Yes	
Yes		Meter Phase of Electric Meter	EL_PHASE_CH	Yes	
Yes		Electric Meter Form	EL_FORM_TYPE_CH	Yes	
Yes		Flag indicating that electric meter is transformer rated ( 1 if Transformer Rated, 0 otherwise)	transrated	Yes	
Yes		Internal PG&E code, identifies distribution transformer	TRANF_ID		
Yes		Internal PG&E code, identifies meter substation	sub_id		
Yes		Internal PG&E code, unique within a Substation ID, identifies the substation bank where the meter is located	bus_id		
Yes		Internal PG&E code, unique within a Substation ID, identifies the substation Feeder where the meter is located	FEEDER_NO		
Yes		Code identifying transformer installation type (SS=Subsurface, UG=Underground, PM=Pad Mount, OH = Overhead)	INSTCD	Yes	
	Yes	Size of gas meter	CFH	Yes	
	Yes	Code for Type of meter ( T = Tincase, S = Steel TinCase, Otherwise blank)	tin_cd	Yes	

**Exhibit 3: Map of the Four PG&E Climate Zones**



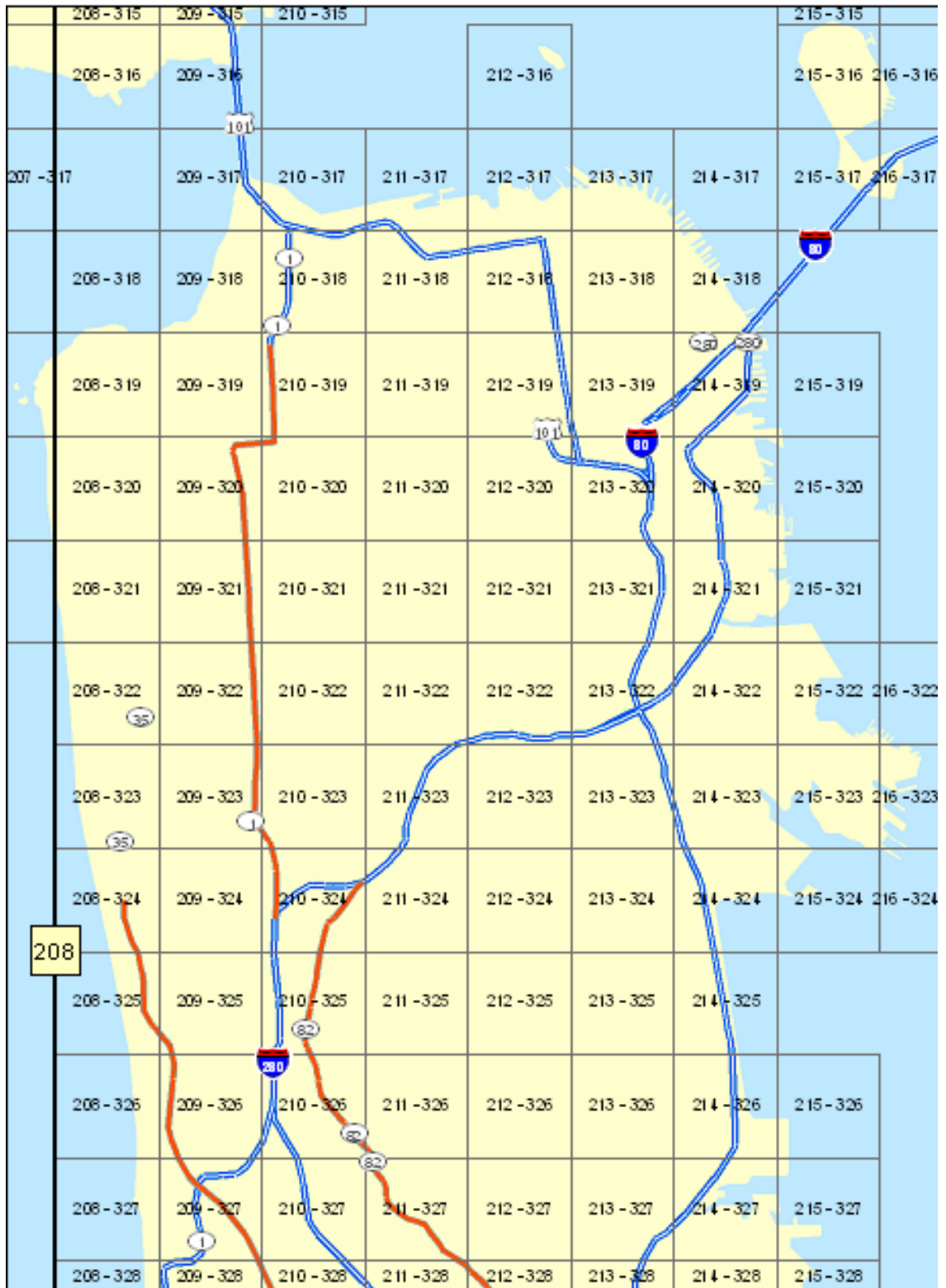
**Exhibit 4: Meter Counts in the 18 PG&E Operating Divisions**

#	Item Value	Electric	Gas
1	Central Coast	269,475	203,321
2	DeAnza	203,043	160,662
3	Diablo	285,789	248,132
4	East Bay	337,226	315,115
5	Fresno	368,767	233,179
6	Kern	210,330	130,570
7	Los Padres	180,897	323
8	Mission	352,381	302,270
9	North Bay	234,958	189,700
10	North Coast	340,715	209,705
11	North Valley	192,367	127,312
12	Peninsula	286,452	237,331
13	Sacramento	185,499	567,945
14	San Francisco	362,203	283,862
15	San Jose	363,039	332,395
16	Sierra	250,512	155,243
17	Stockton	257,590	203,902
18	Yosemite	208,456	234,994
All	All	4,889,699	4,135,961

Exhibit 5: Map of the 18 PG&E Operating Divisions

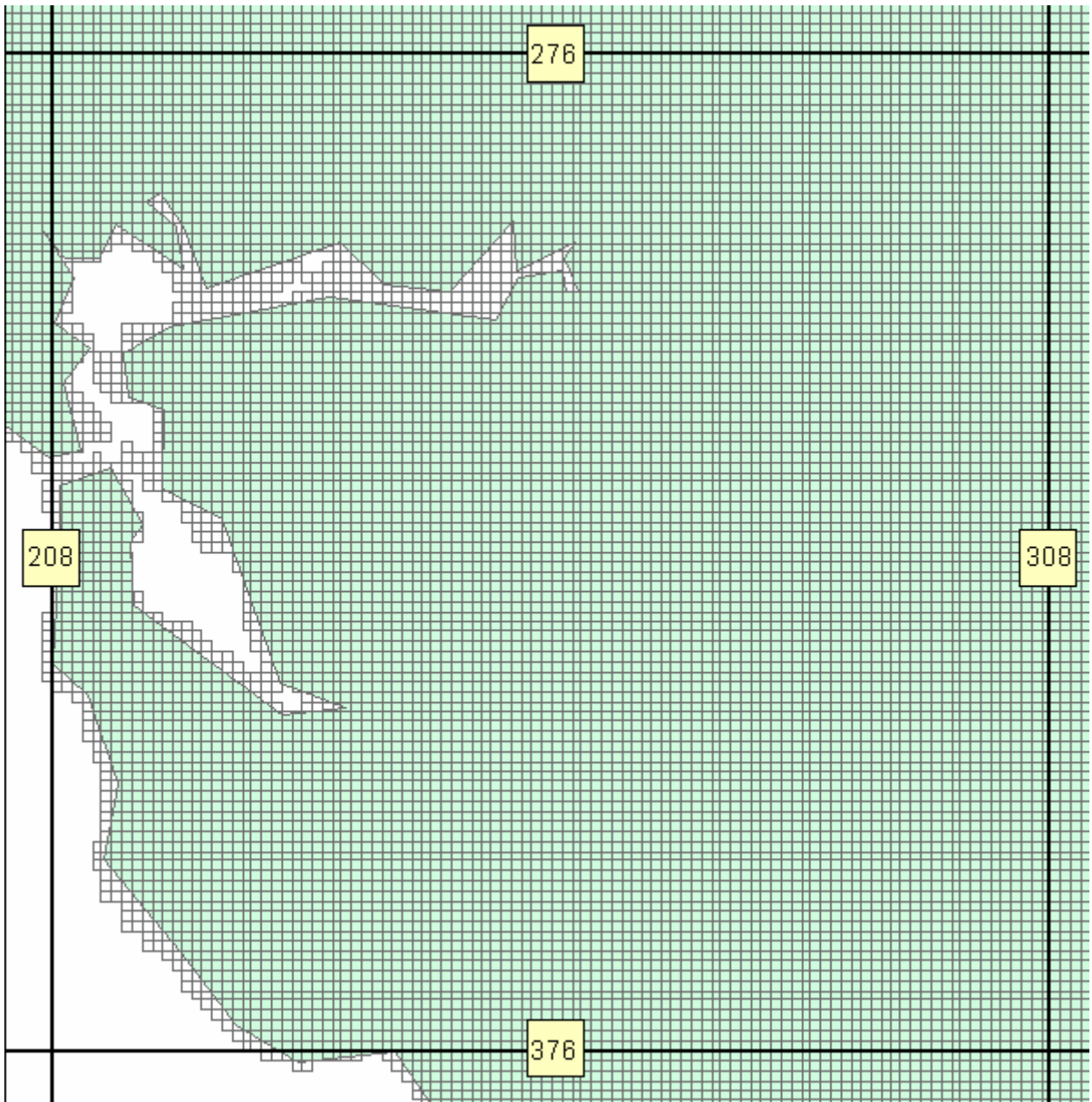


Exhibit 6: Example of Grid Squares in Downtown San Francisco

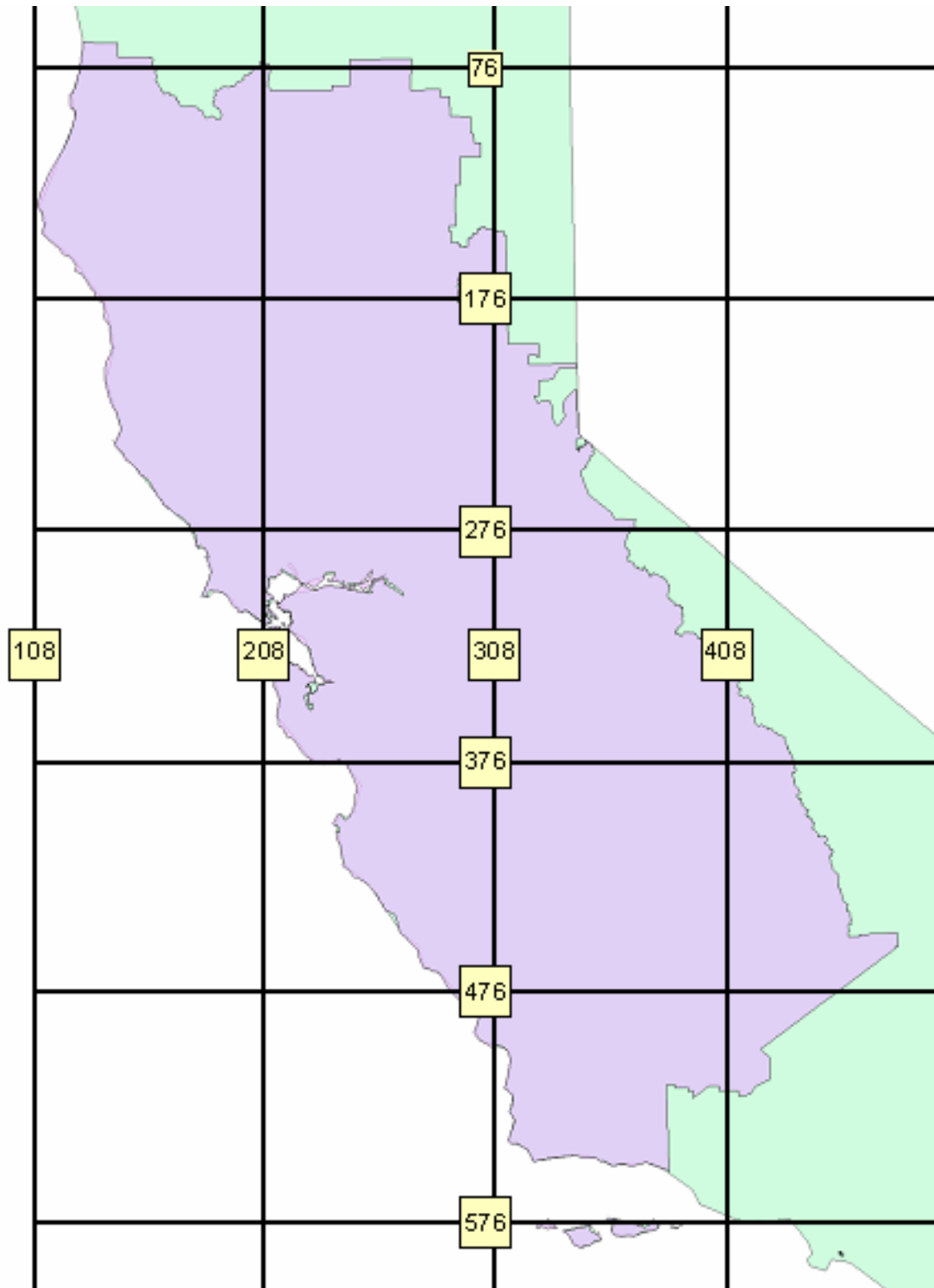




**Exhibit 7: Boundaries of 10,000 Grid Squares in the Bay Area Presented to Illustrate the Detail Provided by the Grid**



**Exhibit 8: Grid Square Reference Points for the PG&E Service Territory**



## **2. Pole Data**

Location data for 1,975,915 poles in the PG&E service territory is provided in Microsoft Access format (poles.zip) and bar-delimited ASCII data (Asciipoles.zip). This pole file represents the majority of poles in the service territory: However, not all poles are represented (about 500,000 may be missing from the database), so suppliers should not assume that all of the poles are represented. Note that the meter-level transformer data can be used to classify transformers as above or below ground, which will indicate to some extent the presence or absence of poles in an area.

## **3. Documentation Spreadsheet**

An Excel spreadsheet, Datadictionary.xls, which is provided as datadictionary.zip, provides the maps and data tables in this attachment, along with distributions of meters across values of key data fields in the meter-level database.

## **4. GIS Data Files**

Two GIS executable files are provided.

1. An electronic map of the PG&E service territory, illustrating the distribution of meters within particular square-mile grid areas requires no special software except for ESRI's ArcReader 9.0 tool, which is included on one of the CD-Roms (ArcReaderProgram.exe). Before attempting to use the electronic map, suppliers should "run" this file to install ArcReader. Running the executable file unzips the needed program files to the workstation hard disk, and then running the setup.exe file downloaded as one of the files installs the software.

The electronic map has no information in it that is not contained in the meter level and pole-level databases, but it does provide a convenient way to visualize the density distributions, and to explore meter concentrations in sub-areas of the service territory. In addition, it allows the user to see, by "panning" around the map, identification of the square-mile grids that are appended to the individual meter records. To use the electronic map, first install ArcReader, as described above. Then run the executable file ArcReaderPG&E.exe. Finally, launch the ArcReader tool, and open the file PG&E.pmf, which results from running the executable file.

The map that opens in ArcReader after you open PG&E.pmf lets you do several things:

By checking boxes on the left side of the screen (layers) you can view

- The geographic boundaries of the climate zones, the operating divisions, and the PG&E electric and gas service areas

- The major roads within the service territory
- The square-mile grid system designed to provide a detailed meter and pole density description of the service territory
- Density distributions of the electric meters, the gas meters, the poles, and the total meters across the square-mile grid system.

By using the magnifying glass tool at the top of the screen, you can zoom in or out of any particular area of the map. Note that the square mile grid system only displays if you zoom in to a level that is readable, and the code numbers for each grid square only display when you zoom to a resolution that makes them legible.

By using the information tool at the top of the screen ( the i ) you can click on any grid square in the electric meter, gas meter, total meter layers and view counts of all the meters in that square. For each square, a popup menu will provide counts of all electric and gas meters, all electric meters, all gas meters, all electric single phase meters, all electric three phase meters, all electric network meters, and all poles.

You can print whatever layers and zoom layers you may have highlighted.

2. A set of GIS coverages results from running ArcGisMapPG&E.EXE. These coverages are ready to input into ESRI's ARCMAP 9.0 GIS software. The ESRI software is commonly used, and federal and most state government GIS data is distributed in this format. ARCMAP 9.0 is described on the ESRI website ([www.esri.com](http://www.esri.com)). Use of these files is optional, and there is no information in these files that is not included in the meter-level databases. To use the coverages first install ARCMAP 9.0 or higher onto your computer, and then open PG&E.mxd, which is created by running the executable file. The coverages provided are in SHP format so the GIS data in the subfolders can be used with earlier versions of ESRI's ARCVIEW (3.3 and 8.0). This set of coverages is provided, in addition to the published electronic map described above, for those suppliers that want to customize the density categories and work with the input data directly.

## 5. Grid Square Spreadsheet

The file gridsquares.xls, provided in a zip file gridsquares.zip, presents some detailed meter and pole counts for each of the populated square miles in the service territory. Of the approximately 70,000 grid square miles that represent the service territory, about 35,000 have meters or poles within them. The spreadsheet gives the grid square ID code, and counts of electric meters for all form and class combinations, counts of gas meters by type, and counts of poles.