



Instruction Manual

GE Energy Aggregator revision: 4.2

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GE Energy Aggregator Instruction Manual for product revision 4.2.

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Part number: 1601-0501-A1 (June 2017)

Safety words and definitions

The following symbols used in this document indicate the following conditions



Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Indicates practices not related to personal injury

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GE Energy Aggregator

Chapter 1: Overview

1.1 About GE Energy Aggregator

GE Energy Aggregator is a fully customizable software application that lets you create and view an energy dashboard, analyze costs, and automatically generate detailed energy usage reports and usage bills using GE Communicator application databases.

GE Energy Aggregator is designed for use with GE Energy EPM meters with logging (memory) functionality.

This includes the following meters:

Power Quality Meters

- EPM 7000
- EPM 9450/9460
- EPM 9800
- EPM 9900

Submetering

- EPM 4600
- EPM 7100

GE Energy Aggregator performs complex calculations such as multiple entity aggregation, and supports user-programmable rate and tariff structures. This robust application allows for generation, transmission, distribution, and tax charges, and can be used for steam and other commodities as well as electrical billing. It also supports detailed usage analysis in the form of usage reports and trending charts.

GE Energy Aggregator has three parts:

- GE Energy Aggregator Settings Editor: the part of the application you use to set up billing, including customer and location configuration, data import, rate configuration, and correcting errors in the imported data.

- GE Energy Aggregator Dashboard Viewer: the part of the application you use to view the Energy Dashboard, generate and view bills, view and analyze usage data, and generate and view usage reports.
- Database Server: the part of the application which provides access to the billing database.

GE Energy Aggregator includes the following features:

- Support from GE MeterManager software allows for meter and logging automation and management
- Dashboard layout
- Weather data to provide weather vs. load comparisons
- Meter aggregation feature and virtual meters
- Ability to archive rate structures that have changed
- Ability to set up seasonal fixed charges
- Ability to set up tiered rates
- Ability to export data from the meter
- Reporting capabilities
- Technical tools

Multiple simultaneous sessions of the software are supported.

- Up to 250 locations per customer and 2500 meters (total) are supported.



DO NOT EXCEED this number. Additionally, do not exceed 100 meters per location. The software will issue Warnings indicating that this is the maximum limit; i.e, 100 meters per location, 250 locations per customer, 2500 meters total.

1.2 GE Energy Aggregator licensing

GE Energy Aggregator is available with a free Demo license for trial use, or a fully licensed paid version.

GE Energy Aggregator license types	Features available
Demo license (free)	Limited to a single meter location
Full license (paid)	- Unlimited meter locations - Automated updates

In addition to a paid license, the GE Energy Aggregator application requires at least one GE Communicator (4.0 or higher) license for full functionality.

GE Energy Aggregator uses the GE MeterManager automation component, which is installed as a part of the GE Communicator (4.0 or higher) application. A licensed version of the GE Communicator4.0 software must be installed on the PC that will function as the Server. The demo version of GE Communicator does not include the GE MeterManager automation component, and will not work with GE Energy Aggregator.

1.3 Order codes

GE Energy Aggregator licenses are available with different maintenance plans.

	–	*	Description
PLSOFT	–	EAG1M	GE Energy Aggregator License with 1 year of maintenance
PLSOFT	–	EAG5M	GE Energy Aggregator License with 5 years of maintenance

Maintenance, in this case, refers to automated updates of the GE Energy Aggregator software.

1.4 Contact us

For product support, contact the information and call center as follows:

GE Grid Solutions

650 Markland Street

Markham, Ontario

Canada L6C 0M1

Worldwide telephone: +1 905 927 7070

Europe/Middle East/Africa telephone: +34 94 485 88 54

North America toll-free: 1 800 547 8629

Fax: +1 905 927 5098

Worldwide e-mail: multilin.tech@ge.com

Europe e-mail: multilin.tech.euro@ge.com

Website: <http://www.gegridsolutions.com/multilin>

GE Energy Aggregator

Chapter 2: Installation

2.1 Installing the GE Energy Aggregator Application

GE Energy Aggregator software can be run either as a standalone program (the databases are stored on the computer that is running the application) or in a Client/Server format (the databases are stored on the Server and the application is run on the Client PCs). See your System Administrator for the setup you will be using.

WARNING

IMPORTANT: The GE Energy Aggregator application utilizes the GE MeterManager automation component, which is installed as part of the GE Communicator (4.0 or higher) application. A licensed version of the GE Communicator 4.0 software must be installed on the PC that will function as the Server. The shareware (demo) version does not have the GE MeterManager automation component and will not work.



NOTE

The licensed copy of the GE Communicator application only needs to be on the Server, not the Clients, for the GE MeterManager application to operate. However, some extended features such as custom meter addresses do require a GE Communicator application license to be installed on the Client PCs.



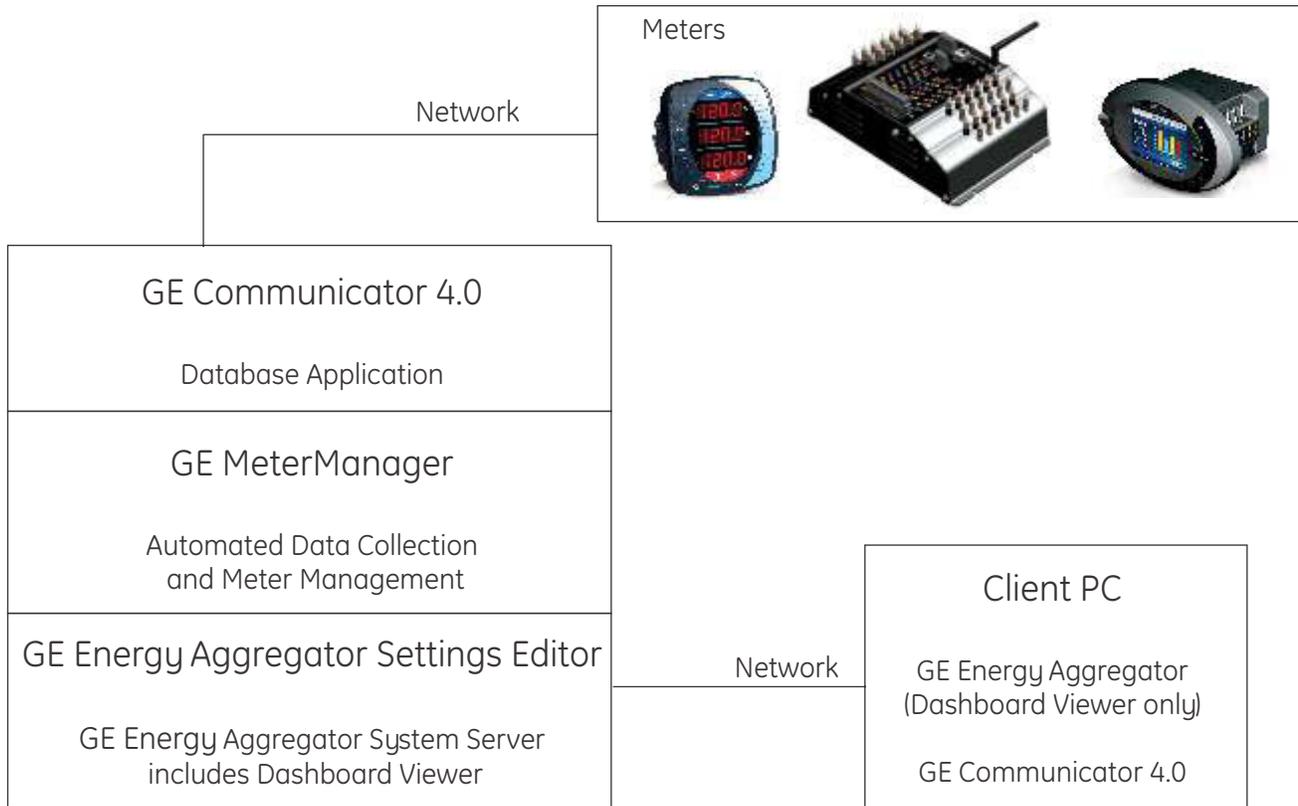
NOTE

The GE MeterManager application should be configured to download log data only from the Server, not from the Clients. The Clients will read the data from the Server PC.

GE Energy Aggregator must be run on a computer with and one of the following operating systems:

- Microsoft Windows® Server 2008
- Microsoft Windows® Server 2012
- Microsoft Windows® 7 Professional Operating System
- Microsoft Windows® 8/8.1 Professional Operating System
- Microsoft Windows® 10 Professional Operating System

Refer to the following diagram for a graphical representation of the way the software modules work together



2.1.1 Important Installation Requirements

This section gives the system resource requirements for full usage of the GE MeterManager and GE Energy Aggregator applications installed and run together, on a single computer. Recommendations for optimum usage are given. The GE MeterManager application is installed as part of the Professional version of the GE Communicator software. It centralizes, groups, and provides easy access to all meters, automatically. It also acts as an App launcher, allowing a user to view data in real time, to view stored data, and to launch other GE applications, as needed. It specifically allows for automation of the log downloads which GE Energy Aggregator needs for usage reporting and billing.

Storage: The storage requirements for running and storing meter data and reports depends on a number of factors. The majority of these factors are affected by the number of meters in the system. Items that are stored consist of:

- Reports
- Meter Log Databases
- Retrieval Logs
- GE Energy Aggregator Databases
- Internal Logs

Storage requirements are given in the following table.

Meters	Locations	Years		
		1/12	1	5
10	1	23 MB	273 MB	1,365 MB
10	10	24 MB	282 MB	1,412 MB
100	10	195 MB	2,345 MB	11,727 MB
100	50	199 MB	2,387 MB	11,934 MB
100	100	203 MB	2,439 MB	12,193 MB
500	10	960 MB	11,515 MB	57,574 MB
500	100	967 MB	11,608 MB	58,040 MB
500	500	1,002 MB	12,023 MB	60,113 MB
1000	10	1,915 MB	22,977 MB	114,883 MB
1000	200	1,931 MB	23,173 MB	115,867 MB
1000	1000	2,000 MB	24,002 MB	120,012 MB
2000	50	3,828 MB	45,941 MB	229,707 MB
2000	200	3,841 MB	46,097 MB	230,484 MB
2000	2000	3,997 MB	47,962 MB	239,810 MB

System: The amount of system resources needed for running the various components of the system depends both on the specific configuration of the system and on how it is being used. The majority of system usage occurs during log retrieval, importing data into GE Energy Aggregator, and generating reports. The different usage loads are as follows:

- **Idle**
- **Viewing:** Each GE MeterManager Monitor, GE Energy Aggregator Settings Editor, and GE Energy Aggregator Dashboard Viewer that is open, puts a load on the system, due to the functions of reading data from the database and refreshing the UI. The primary system usage is by the CPU, and it is caused by refreshing the UI. These open components (monitor, editor, dashboard) also occur in parallel, so their usage can result in cumulative loads on the system.
- **Retrieval:** Retrieval of meter logs involves downloading the meter data and converting it to a local file database. This occurs at the retrieval interval specified by the user. These functions also occur in parallel, so they can result in cumulative loads on the system. A large amount of disk usage occurs while the log databases are converted and data is being written to the local database files.
- **Importing:** Meter logs are checked every hour for new data to be imported into the GE Energy Aggregator database. If there is no new data, only regular viewing usage occurs. When new data is found, the peak load of Importing occurs. While importing, a large amount of network and disk usage occurs while the new data is written to the database.
- **Reporting:** Reports are checked every 12 hours. While checking, only regular viewing usage occurs. Once a month, multiple reports are generated for the various GE Energy Aggregator locations. At this time, the peak load of Reporting occurs. While generating reports, a large amount of disk usage occurs while data that needs to go into the reports is read from the database.

System requirements are given in the following table. The usage requirements that are shown should be considered the Peak usage (the highest values seen on a normal basis).

	Peak						
	idle	viewing (per user)	viewing (10 users)	retrieval (per meter)	retrieval (10 meters)	importing	reporting
RAM	50 MB	140 MB	1000 MB	60 MB	600 MB	150 MB	500 MB
CPU (one thread)	0.24%	40%	400%	100%	1000%	150%	100%
Disk	2 kB/s	40 kB/s	400 kB/s	3,000 kB/s	30,000 kB/s	7,500 kB/s	3,000 kB/s

- CPU:** The CPU usage is given as a percent across the entire system, and can vary based on the number of threads (which determine how the CPU handles multiple software processes). For example, with 10 viewers, there are 11 softwares running, resulting in a cumulative usage of 400%. If there are 16 threading contexts, then each will only see a usage peak of 40% (with 5 contexts free for other tasks). However, if only 4 threading contexts are available, each will be loaded with 100% usage. See the Recommendations section, which follows.
- Usage overflow:** RAM, CPU, and Disk rely on each other, and overflowing one can lead to increased usage on the others. The numbers given above are dependent on enough free usage/space to accommodate the given tasks.
- Other System Usage:** If there are any other tasks running on the system at the same time (such as other applications), these can take system resources away from GE MeterManager and GE Energy Aggregator, which will cause all tasks to run more slowly.

Recommendations: The following table gives the recommendations for optimal performance. The Dedicated column is the amount that should be reserved for the GE MeterManager/GE Energy Aggregator system for optimal performance. The Overall System column gives the recommendations for the average, single user system. A multiuser system should allocate more resources.

	Recommendation	
	Dedicated	Overall system
Disk Space	320 GB	1 TB
CPU	4 core, 3 GHz	
RAM	8 GB	16 GB
Disk Throughput	50 MB/s	200 MB/s

- Disk Space:** The system uses about 26 MB per year, per meter. 320 GB dedicated disk space will allow for 2000 meters for 5 years. See the previous Requirements chart.
- CPU:** As multi-threaded systems, GE MeterManager and GE Energy Aggregator can benefit from multiple CPU cores and threading contexts. It is recommended that the CPU have at least 4 cores and 8 threading contexts (for example, the Intel I7 processor).
- Disk Throughput:** The greatest load on the system is reading from and writing to the databases on the disk. Because the entire system relies on reading from and writing to the disk, a slow disk will cause the entire system to run slowly. Under peak load, 50

MB/s can be read/written to the disk, so it is recommended that a High Performance Hard-Drive, such as a Solid State Drive, be used for database storage.

- **Dedicated System:** The Meter Log Retrieval and Report Generation components of the software have heavy usage requirements when running. For an optimal system, it is recommended that GE MeterManager be run on a dedicated server, reserved solely for that purpose.

2.1.2 Installation Procedure

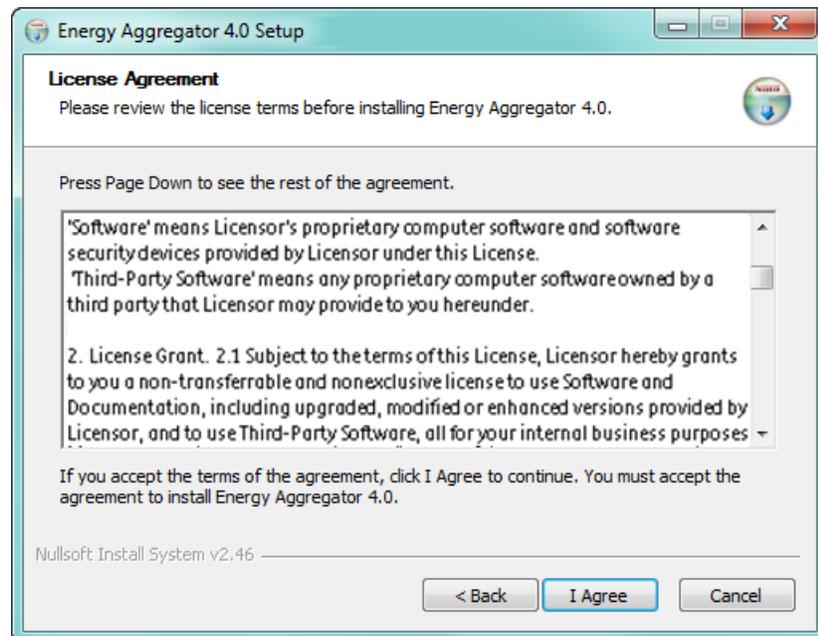
1. Insert the GE Energy Aggregator application's CD into your PC's CD drive. You will see the following screen in your web browser.



- Click the **Software** button to open the Setup Wizard screen.

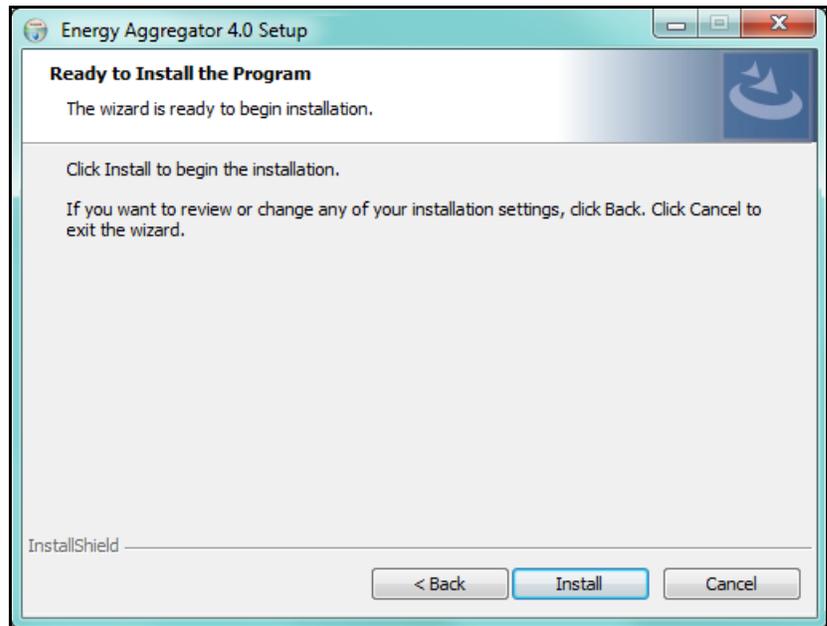


- Close any open programs and click **Next**.
You will see the screen shown below.

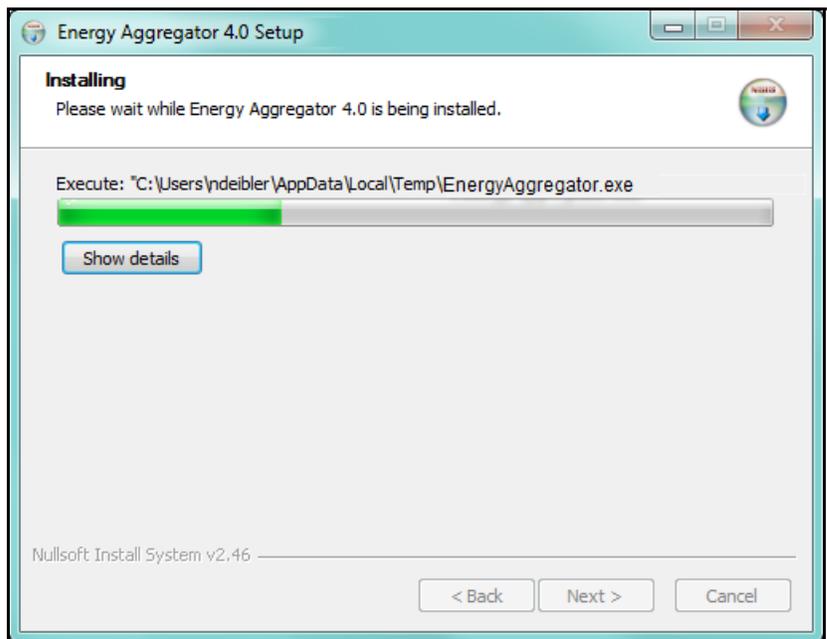


- Review the license agreement for the GE Energy Aggregator application. Use the scroll bar to view the entire document. Make sure you read and agree to the terms of our End User License Agreement; then click the radio button next to "I accept the terms in the license agreement." By selecting this option, you are agreeing to the full terms of this End User License Agreement.
Note that you can click the **Print** button to print a hardcopy of this agreement.

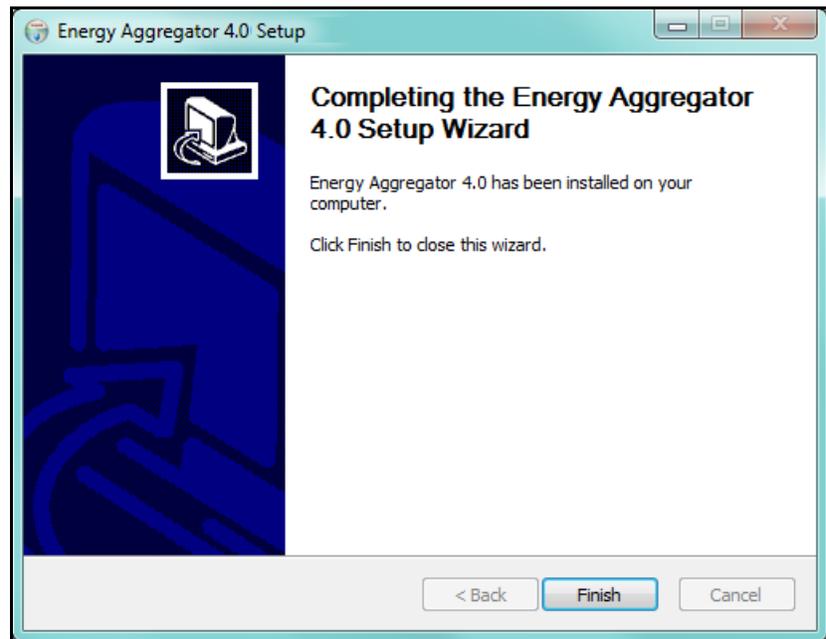
- Click **Next**. You will see the screen shown below.



- Click **Install**. You will see the screen shown below as the software is being installed.



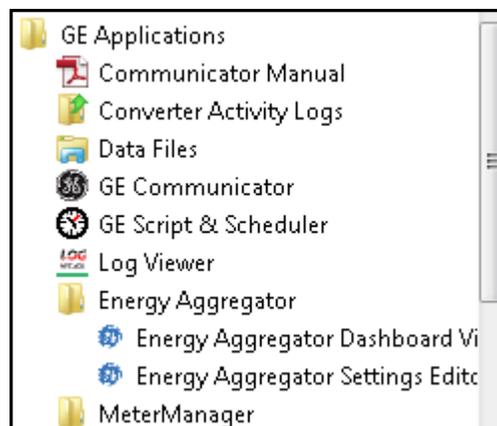
- When the application has been installed, you will see the screen shown below.



- Click **Finish** to close the Setup Wizard.

NOTE: You can open a Notepad file with the installation details by selecting the checkbox next to "Show the Windows Installer log." The file will open after you click Finish.

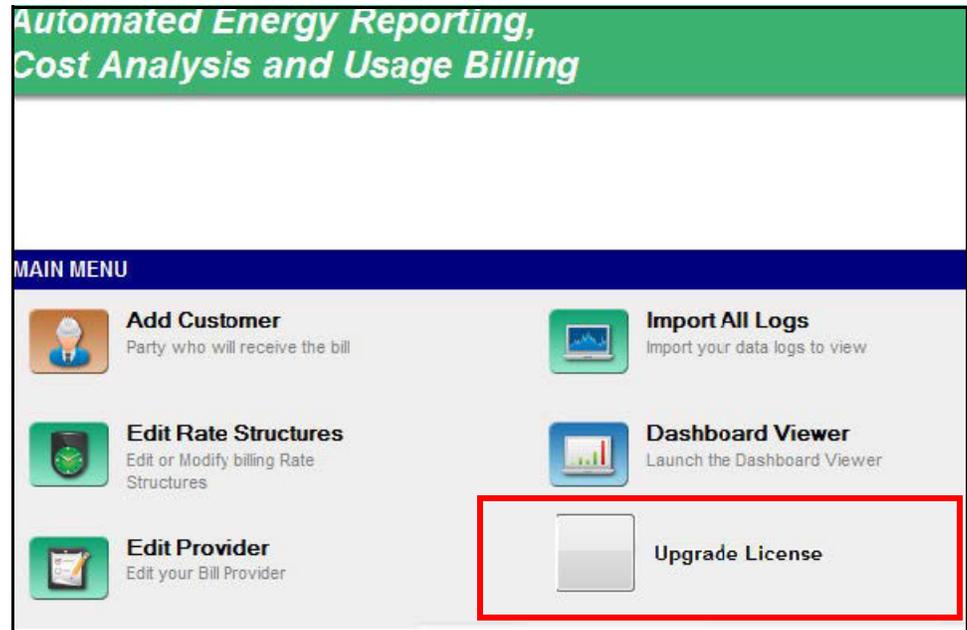
- To run the application, select it from the Start menu:
Start > All Programs > GE Applications > Energy Aggregator > Energy Aggregator Viewer or Energy Aggregator Settings Editor.



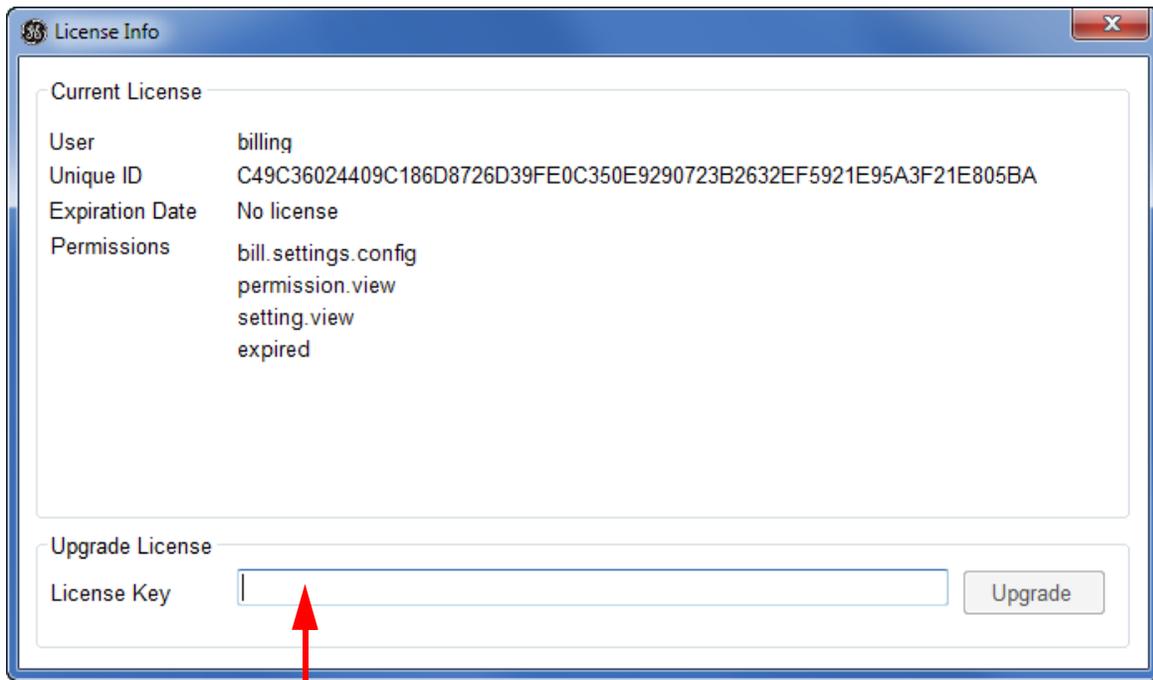
2.2 Enter a Software License Key

When you first use the GE Energy Aggregator application, you need to enter the software license key that lets you use the full version of the application (the Demo version lets you set up only one location and does not perform the automatic check for updates).

1. From the GE Energy Aggregator Settings Editor, click the **Upgrade License** icon (or click **Help>Upgrade User License**).



This window opens.



Enter license key here
and click Upgrade

2. Enter the software license key and click the **Upgrade** button. The software will be upgraded to the full version of the application.

2.3 Steps for Using the GE Energy Aggregator Application

As mentioned at the beginning of this chapter, the GE Energy Aggregator application generates bills using either GE Communicator log databases

You already performed Step 1 in this chapter. You need to perform the following steps in order to set up the database files to be used for Energy and other commodity logging, and to use the GE Energy Aggregator application to generate usage reports and bills:

Step 2 - Use the GE MeterManager application to set up your meters for automatic log retrieval. See Chapter 3 “Using GE MeterManager to automate GE Energy Aggregator”; additional information is located in chapters 16 and 18 of the *GE Communicator Instruction Manual*.

Step 3 - The GE EPM meters are already set up for Energy logging - there is nothing additional you need to do. If you need to make any changes, you use the GE Communicator application to configure your meter(s) to log the values you want to use for Energy, other commodity logging, and/or demand. See Chapter 4 “Setting up Logging”.

Step 4 - Configure the GE Energy Aggregator application settings: provider, customer, customer locations, rate structures, meters at location. See Chapter 5 “Configuring Application Settings”.

Step 5 - Use the GE Energy Aggregator Dashboard Viewer: use the Usage Dashboard to compare usage data for different time frames/meters/dates and compared to weather data; generate and view usage reports and bills. See Chapter 6 “GE Energy Aggregator Dashboard Viewer”.

Manage your data. See Chapter 7 “Managing Data”.

View the Action log, test the application, and learn additional tips and advanced options. See Chapter 8 “Additional Features and Advanced Functions”.

GE Energy Aggregator

Chapter 3: Using GE MeterManager to automate GE Energy Aggregator

You use the GE MeterManager application to organize your meters and to set up automatic log retrieval, both of which make the GE Energy Aggregator application very simple to use.

- The GE MeterManager application lets you automatically add all of your network meters to its Meter List. The Meter List is an essential feature for the GE Energy Aggregator application. All you have to do to set up your billing locations is to add meters to it from the Meter List. All of the meter data you need is then automatically brought into the GE Energy Aggregator application.
- The GE MeterManager application lets you set up automatic log retrieval for all of your meters.

NOTE: The basic steps are described here, but there are other features of the GE MeterManager application, which are covered in the *GE Communicator Instruction Manual*.

There are two ways to add meters into the Meter List:

1. Auto Discovery - this is the simplest method. In this mode the software searches out and locates any meters on the network. Once the meters are found, they are automatically added to groups (based on the meter type), and the software automatically begins to download stored meter data.
2. Manual Connect - in this mode, you manually connect to the meter using its IP address. Once the address is entered, the software adds it to a group (based on the meter type), and automatically begins to collect stored meter data for that meter.

3.1 Add Meters to the Meter List Using Auto Discovery

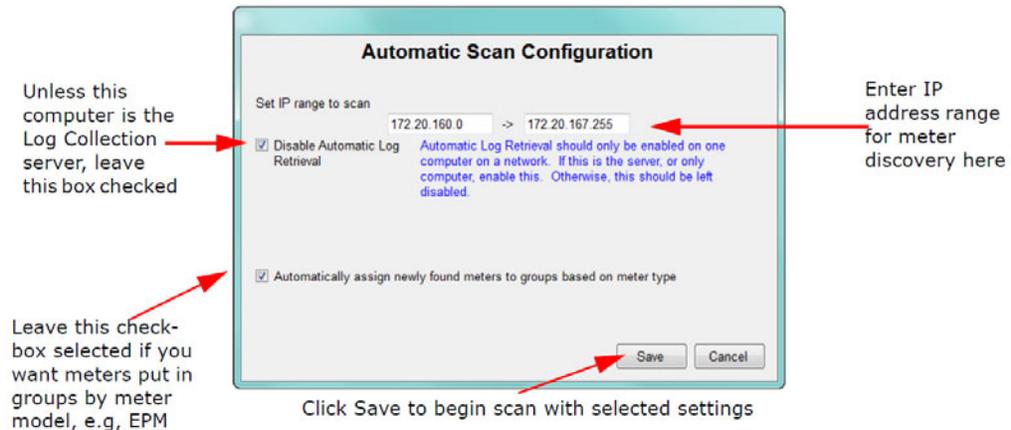
There are two methods to configure Auto Discovery. Use whichever one best suits your needs.

- **Auto Scan** - searches an IP range you enter for network meters and adds them to the Meter List.
- **Meter Discovery Configuration** - gives you access to additional settings for customizing scanning for meters. See Chapter 18 in the *GE Communicator Instruction Manual* for instructions for using Meter Discovery Configuration.

When you use Auto Scan, the application looks for and adds Network meters in the IP address range you enter. You have the option of putting the meters into groups based on meter model.

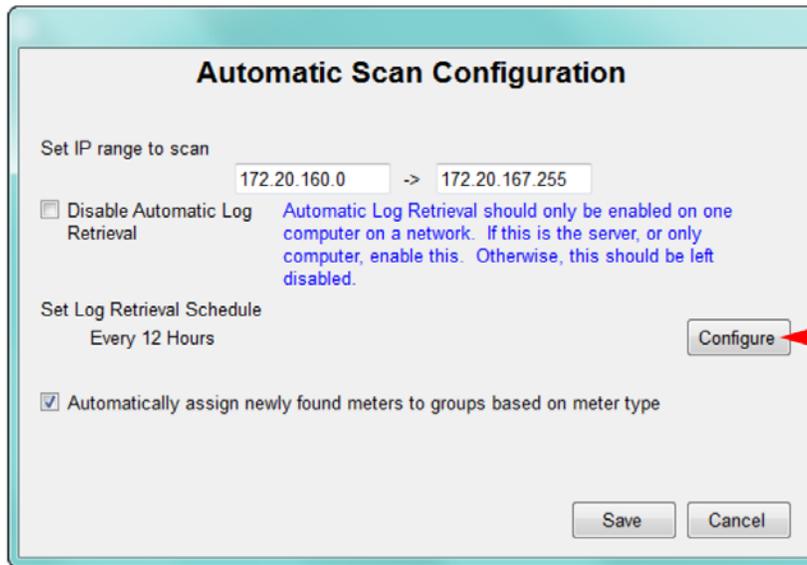
NOTE: The first time you start the MeterManager Monitor after installation, you are asked if you want to enable Auto Scan. GE recommends that you do enable Auto Scan.

1. Click the **Auto Scan** icon at the top of the screen.



2. In the Automatic Scan Configuration screen, you set:
 - The IP range in which you want the application to search for meters: the starting and ending IP addresses.
NOTE: EPM meters use Modbus for communication, which defaults to Port 502. However, if you have changed the Modbus port on the meter, or are using a network device that changes the port mapping, you can specify the port range to scan by adding ":[port]" after the IP address.
 For example, range 192.168.0.1:503 to 192.168.0.255:505 will scan all IP addresses from 192.168.0.1 to 192.168.0.255, and attempt to connect to those IP addresses via ports 503, 504, and 505.
 - Whether or not meters are grouped by meter model. Leave the checkbox selected to group any discovered meters this way. Groups are used to perform tasks on multiple meters at one time.
 - Disable automatic log retrieval - the default of this screen is that automatic log retrieval is disabled for the computer (the box is checked). That is because only one computer in the network - the server, should be enabled for automatic log retrieval.

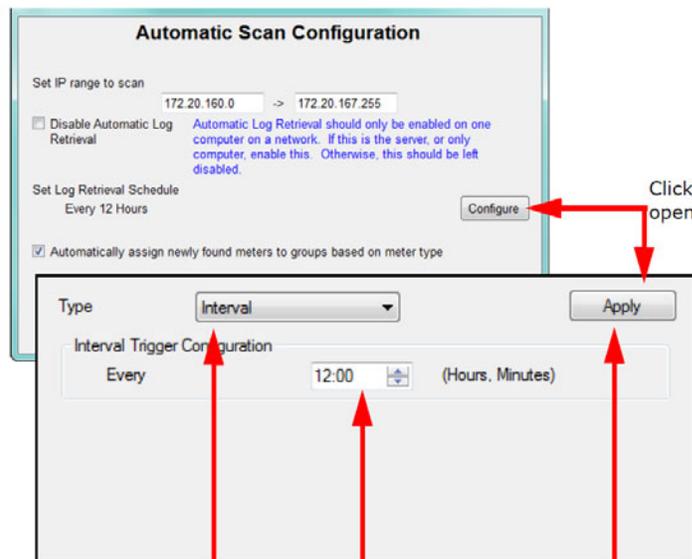
- If this computer is not the Log Collection server, leave the box checked.
- If this computer is the Log Collection server, click on the box to uncheck it - the screen will change as shown below.



Click to set up a log retrieval interval of other than every 12 hours (not recommended)

Now that you have enabled automatic log retrieval for the computer, you can set the log retrieval interval. The default is every 12 hours, which is the recommended setting. If you want to change the interval, click the **Configure** button and then enter the new interval. See the example screen on the next page.

Changing Log Retrieval Interval screen



Click Configure to open this screen

Click to select: Interval - to set up interval log retrieval; Time - to set a specific log retrieval time; or Manual - to perform a manual log retrieval, e.g., to test the system

Click to set interval for log retrieval

Click Apply to save the new interval

- Click **Save** to begin the automatic scan for meters with these settings. In the Searching IP Address field of the Status section, the Meter List screen will show the IP addresses as the application searches for meters. When searching is complete, the discovered meters will be shown in the Meters List (see below).

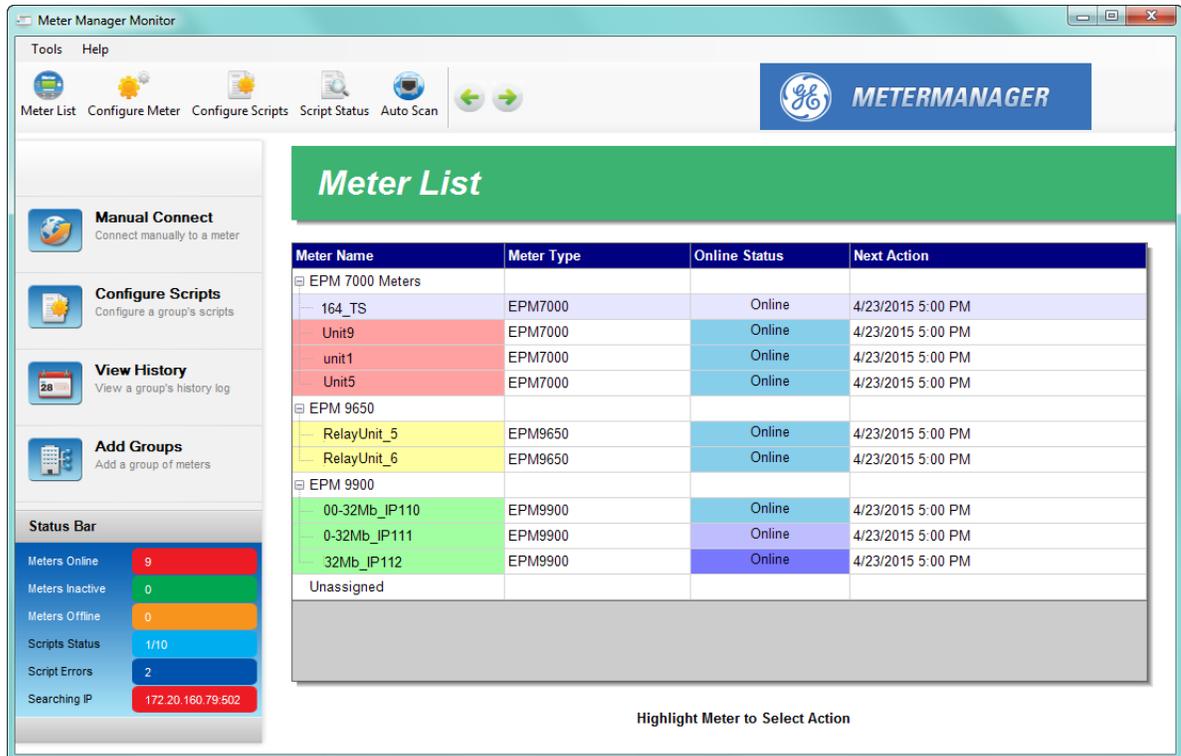


Figure 3-1: Meter list screen

3.2 Manually Connect to Meter

To manually connect to a meter, you enter the meter’s IP address.

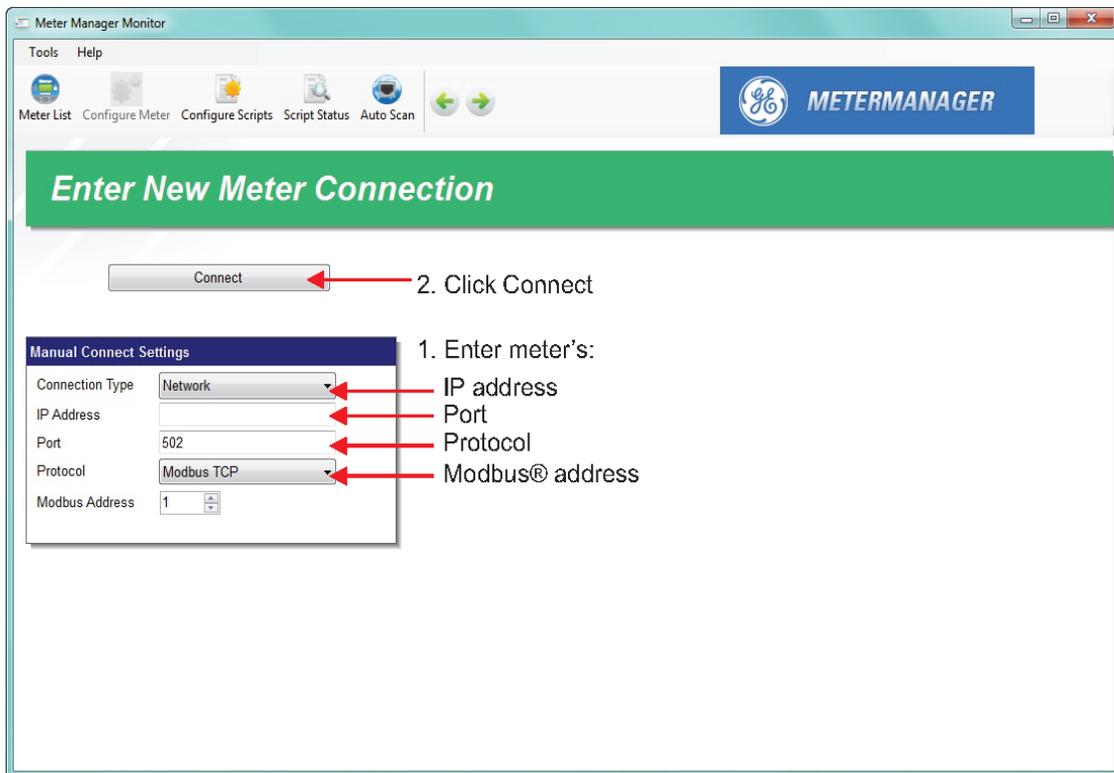
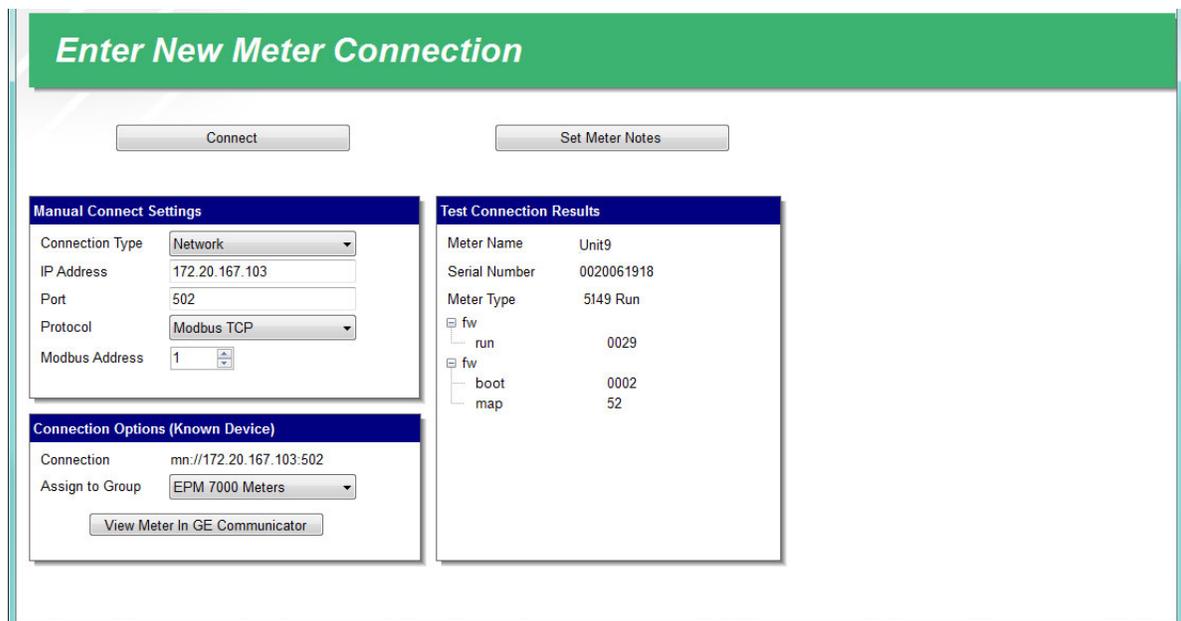


Figure 3-2: Manual Meter Setup Screen

When you click **Connect**, the software looks for the meter, and, when found, shows the screen below.



This screen shows meter connection information. Click **Connect** to add the meter to the Meter List. You set the interval for log retrieval for a manually connected meter by clicking **Configure Scripts** from either the left side or top of the Meter List screen.

1. Select the group the meter is in

2. Click **Configure** to open the Interval setting screen

3. This screen is the same as shown on page 3-3: see instructions there

4. Click **Apply**

5. Click **Save** to implement change

Meter Name	Meter Type	Online Status	Security
Unit9	EPM7000	Online	Not Enabled
Unit5	EPM7000	Online	Not Enabled
unit1	EPM7000	Online	Not Enabled
164_TS	EPM7000	Online	Not Enabled

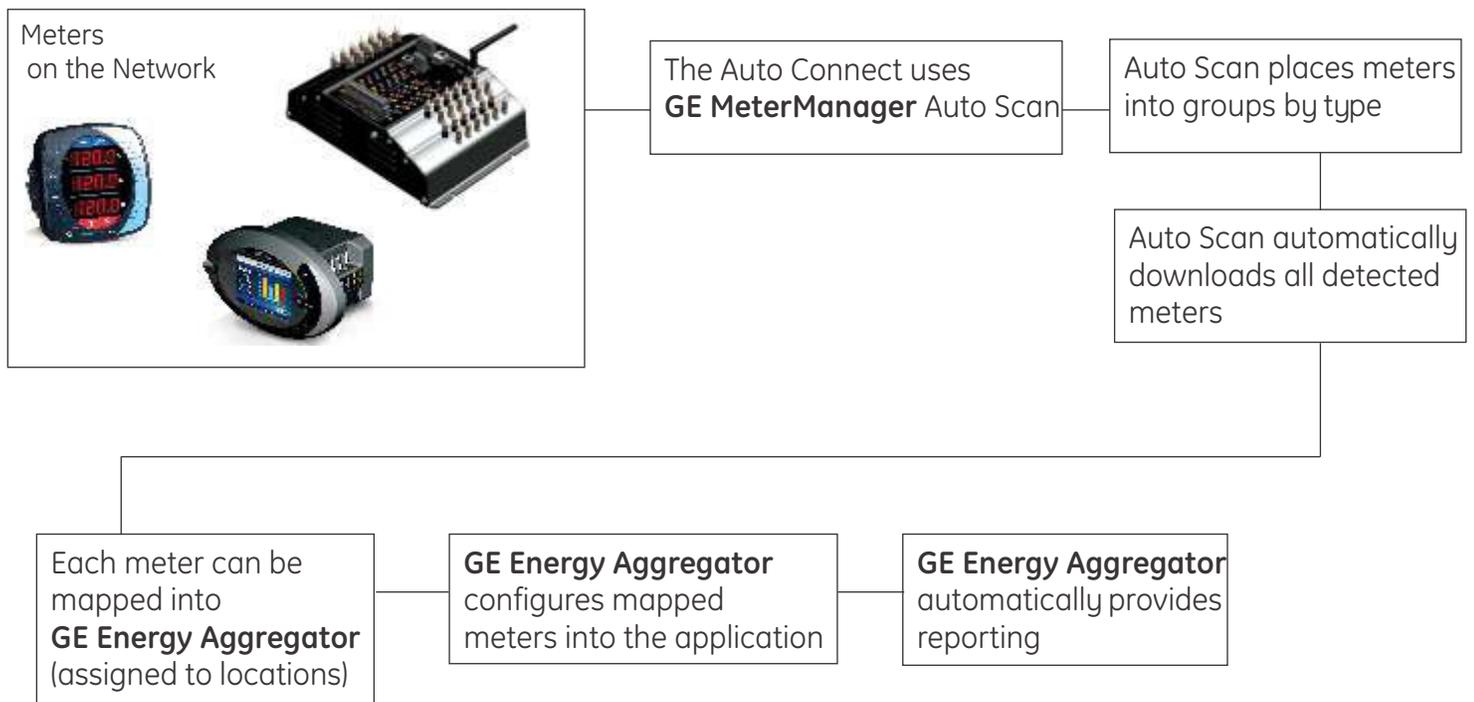
The default interval for log retrieval is every 12 hours. This means that you will receive data from all the meters in this group every 12 hours. If you need the data faster than that, it can be collected as often as every hour.



The smaller the interval between log retrievals, the more load is placed on the network.

3.3 Log Retrieval through GE MeterManager

When log retrieval is performed by the GE MeterManager application, logs for all of the meters in the group(s) are automatically retrieved at the programmed interval, making the job of managing multiple meters simple. The GE Energy Aggregator application automatically imports the retrieved logs and uses them to build the GE Energy Aggregator usage database. The usage database is then used to generate usage reports, bills, and viewing Dashboard data. See the diagram below.



NOTE

The GE MeterManager software automatically adjusts the meter data to account for time changes due to Daylight Savings. For this to work, the meter must be configured to automatically adjust time using the same Daylight Savings rules as the computer that GE MeterManager is running on. If the meter is updated following different rules, errors may be flagged in the data. Note that the DST time adjustment can be disabled through **Tools > Options > Import > Adjust for DST time changes**.

For more detailed instructions on the GE MeterManager application, see Chapter 18 of the *GE Communicator Instruction Manual*.

GE Energy Aggregator

Chapter 4: Setting up Logging

In most cases, there is no need to do anything special to set up logging for the GE Energy Aggregator database. This is because all EPM meters ship with a default Device Profile that logs energy values. As long as you haven't changed this, the automatic log retrieval set for the meters using GE MeterManager will get all the data that the GE Energy Aggregator application needs in order to generate usage reports.



NOTE

If you wish to include the demand computed by the meter in the bill, then add the Demand channel to the historical log configuration. This allows the GE Energy Aggregator application to import the meter's demand values to use in the bill.

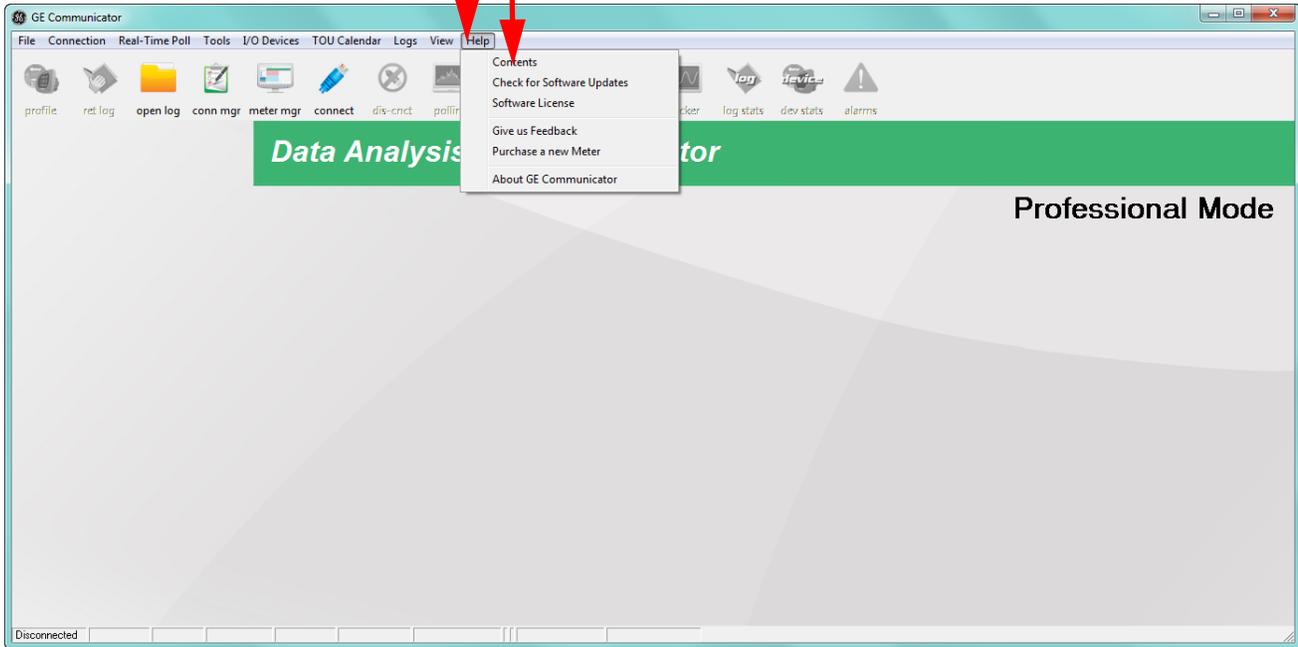
If you need to add Demand, or make any other changes to Energy, Energy in the Interval, and other Commodity logging, use the meter's Device Profile, accessed through the GE Communicator software.



NOTE

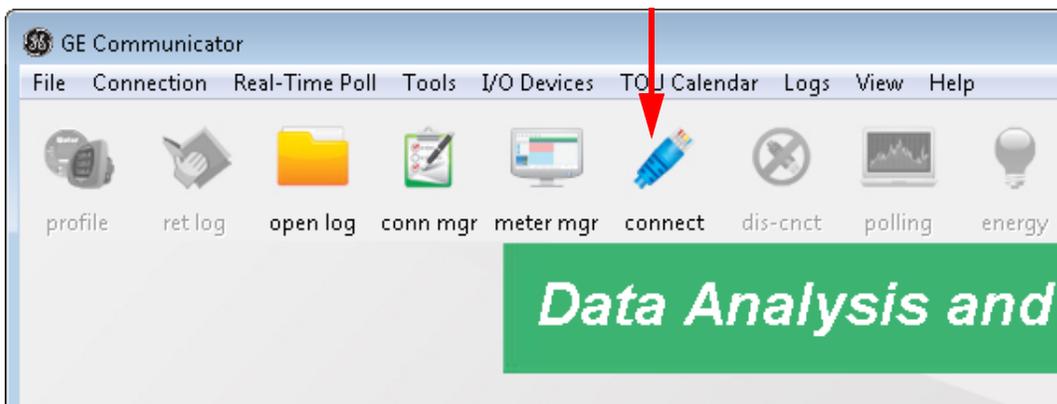
Only the basic steps are given here. For more detailed information, consult the *GE Communicator Instruction Manual* (you can access the manual online by clicking **Help > Contents** in the GE Communicator Menu Bar).

1. Click **Help**
2. Click **Contents** to view manual

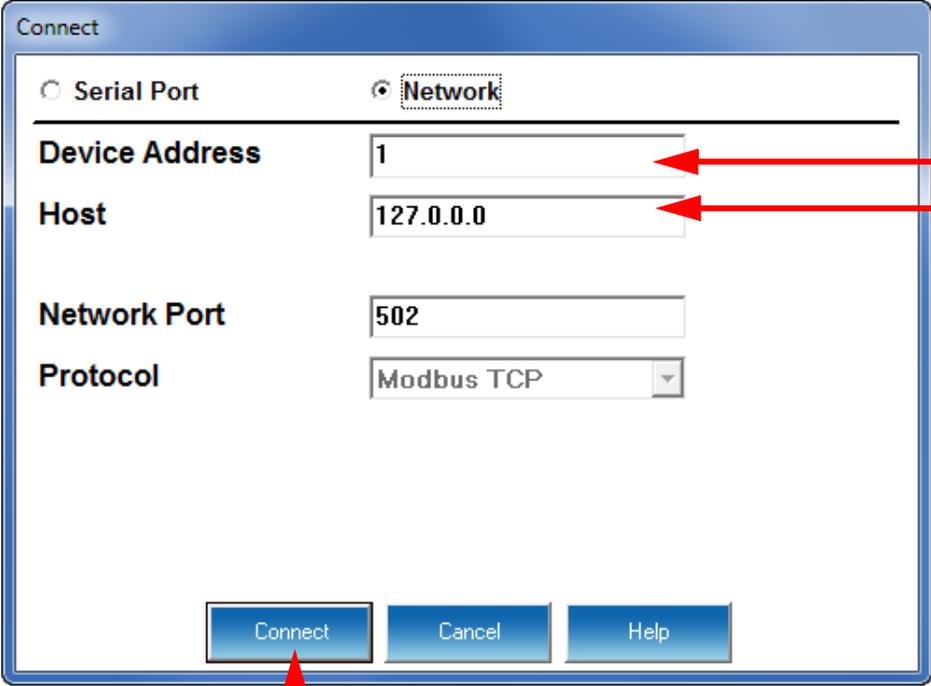


1. Open the GE Communicator application by clicking **Start > All Programs > GE Applications > GE Communicator**. You will see the screen shown above.
2. Click the **Connect** icon in the Icon bar to connect to the meter you are setting up.

Click Connect icon



See the example screen below.



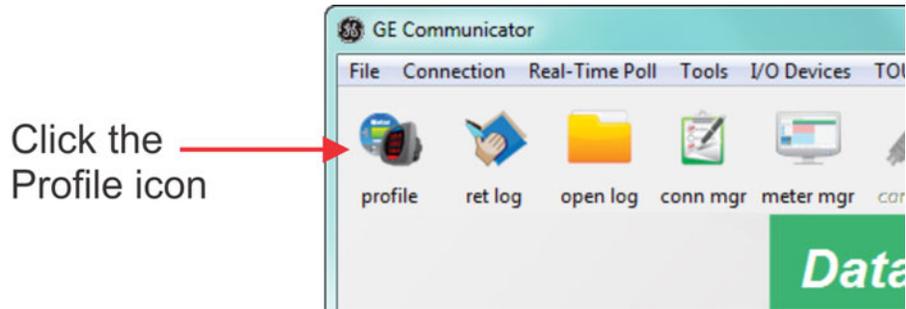
The screenshot shows a 'Connect' dialog box with the following fields and values:

Field	Value
Device Address	1
Host	127.0.0.0
Network Port	502
Protocol	Modbus TCP

Red arrows point to the 'Device Address' and 'Host' fields, and another red arrow points to the 'Connect' button.

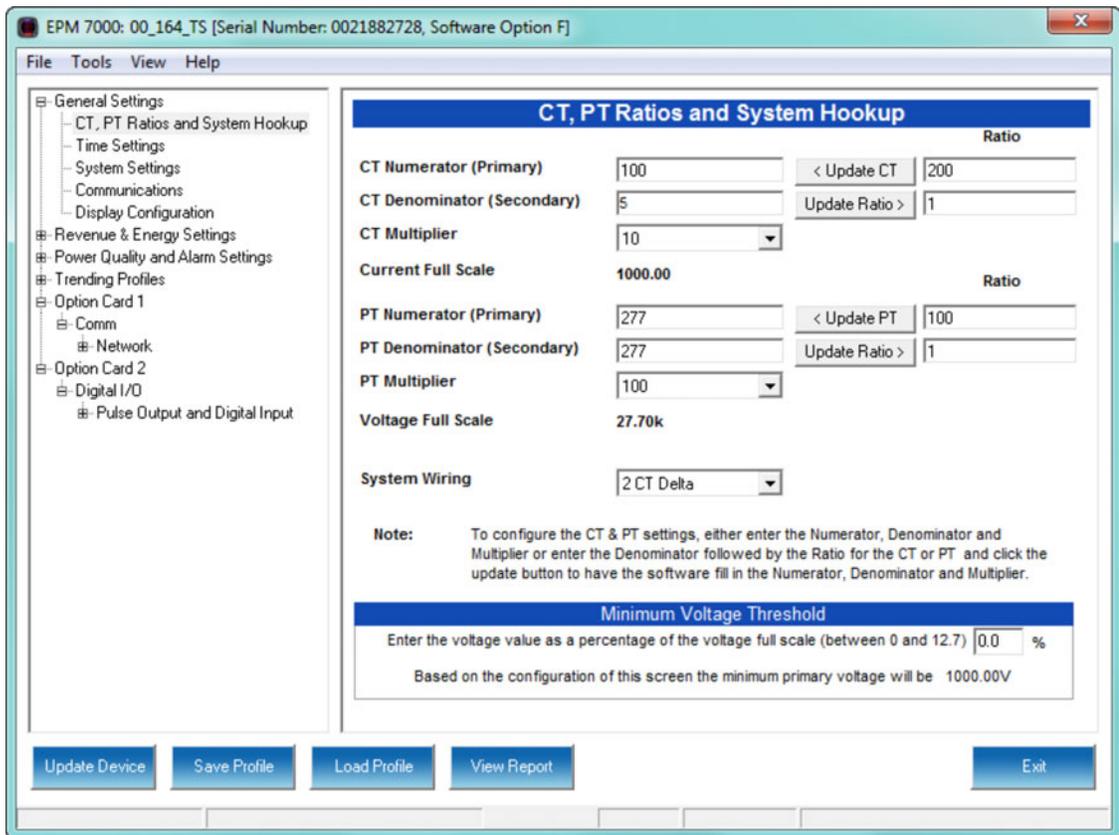
1. Enter Device Address
2. Enter Device's IP Address
3. Click **Connect**

- From the GE Communicator main screen, click the **Profile** icon.



The Device Profile screen for the meter opens. See the example screen, shown below.

Figure 4-1: EPM 7000 Meter Device Profile Screen



- For EPM 7000 meters and EPM 4600 meters click the + sign next to Trending Profiles; for other EPM meters, click the + sign next to Trending Profile Settings and then the + sign next to Trending Setup. You will see a list of historical (trending) logs.

Double-click on the log you want to use to trend energy or other usage. You will see a screen that lets you select the values you want to log. Refer to the table below for the values to select for energy logging.



For the EPM 4600 metering system there is only one historical log for use with the GE Energy Aggregator application - either historical log 2 for the EPM 4600-T three phase configuration or historical log 3 for the EPM 4600-S single phase configuration. The log is pre-configured with the data points you need for logging.

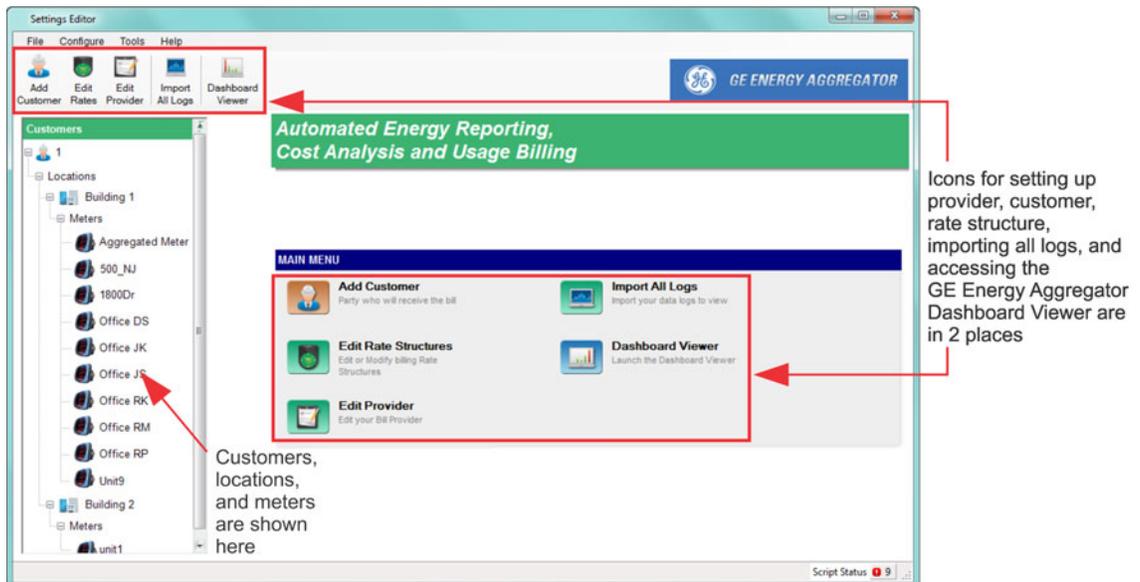
Table 4-1: Table of Settings for Logging Energy, Energy in the Interval, and Commodity

Meter	Group/Sub-group			Data Point		
	Energy	Interval Energy	Commodity	Energy	Interval Energy	Commodity
EPM 7000 EPM 7100	Energy	Energy in the Interval	Accumulators	Watt-hours Received	Watt-hours Received	Input used for accumulation
EPM 9450/ 9460 EPM 9900	Accumulators / Energy/Scaled Primary	Interval Accumulators / Energy/ Scaled Primary	Internal Pulse Accumulation / Aggregations	Quadrant 1+4 Wh	Quadrant 1+4 Wh	Input used for accumulation
EPM 4600	Pre-configured in Log 2 (EPM 4600-T) or Log 3 (EPM 4600-S)					

See the *GE Communicator Instruction Manual* for detailed instructions.

GE Energy Aggregator

Chapter 5: Configuring Application Settings



NOTE

If the GE MeterManager application is running (downloading meter logs), you will see “Script Service Running” at the bottom right of the screen. Click on the message to either pause the MeterManager service, or open the MeterManager Monitor. See Chapter 18 of the *GE Communicator Instruction Manual* for additional information.

Follow these basic steps to set up the GE Energy Aggregator application:

1. Set up provider information.

The provider is the person or organization which is providing the energy, sending the bill, and receiving payments. This information appears on the generated bills, so that the customer knows where to send payment.

See *Set Up a Provider* on page 5-4

2. Set up rate structures.

The rate structure is the collection of settings that determine what rates to apply to the usage values for a commodity, e.g., kWh. The rate structure includes On Peak and Off Peak settings, holidays, and other charges, such as taxes.

See *Set Up Rate Structures* on page 5-14

3. Set up a customer.

A customer is the person or organization which is receiving the bill. A customer may have multiple locations, each of which will get its own bill.

See *Set Up a Customer* on page 5-38

4. Set up the customer's locations.

A billing location is a single unit for which a bill is generated, e.g., a building. A customer can have multiple locations.

See *Set Up a Location and Add Meters to It* on page 5-40

5. Assign the meters and a rate structure to the customer's locations.

See *Adding a Meter Manually* on page 5-50

Each location can have multiple meters and a rate structure for each commodity being billed for, e.g., Energy and gas.

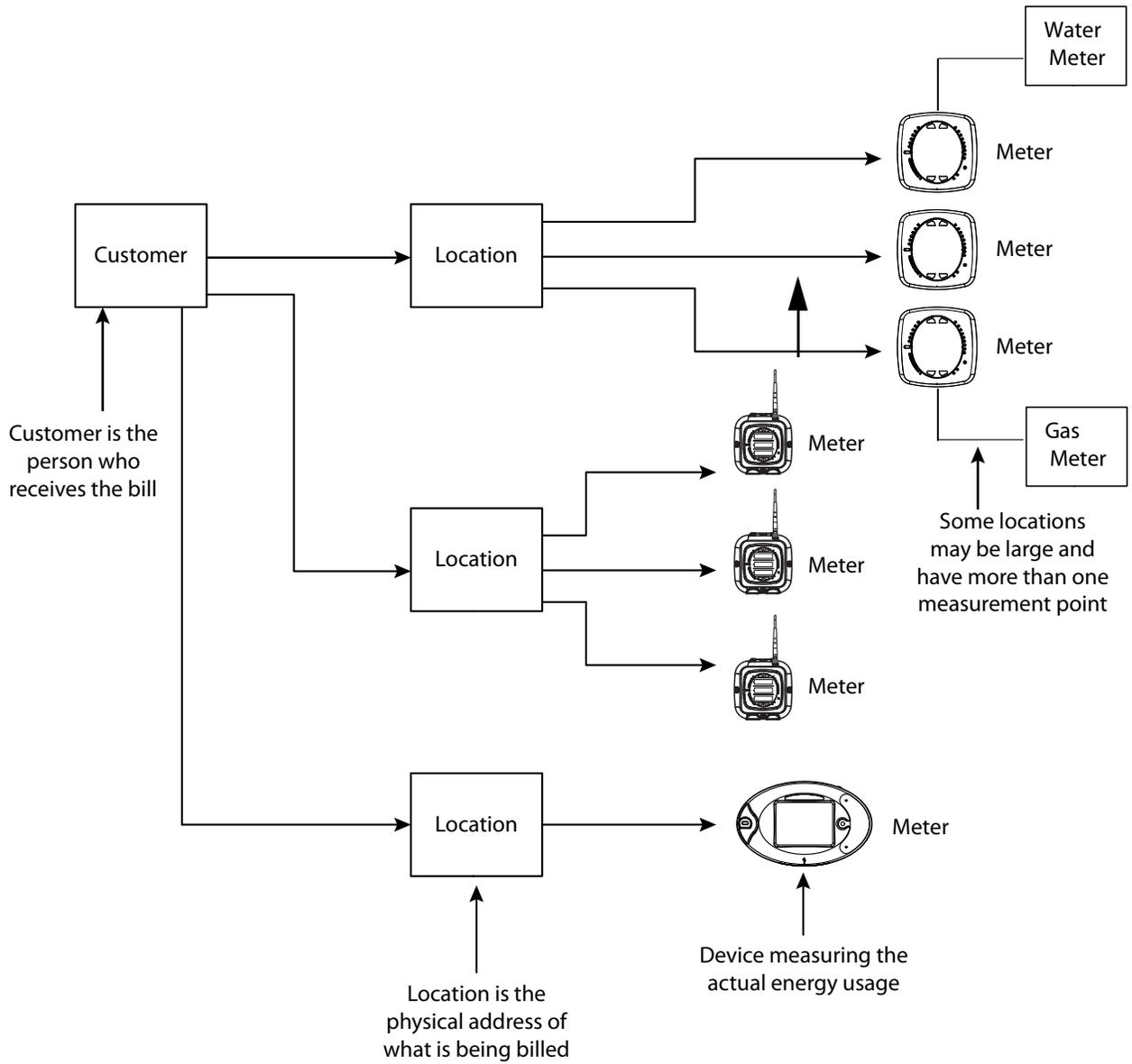
A meter billing point can also be an aggregate of more than one metering point; this is called a virtual meter. For example:

- Meter A + Meter B
- Meter A + 50% of Meter B
- Meter A - Meter B
- Meter A - 50% of Meter B
- Etc.

With virtual meters a user can configure meters to accurately represent the load, by apportioning the correct amount of energy per meter for the actual circuit usage.

For example, if your customer owns three apartment buildings, you would set up each building as a location, and enter all of the meters in a building as well as any rate structures applied to usage for that building. See the diagram on the next page.

Figure 5-1: Overview of Customer Locations, Meters, Rate Structures



5.1 Set Up a Provider

First set up the provider information. The provider is the person who is sending the bill to the customer. The provider will get paid for providing the electricity or other commodity to the customer; the customer is the user of the commodity.

1. From the GE Energy Aggregator Settings Editor main screen, click the **Configure Provider Information** icon.

Provider Configuration

Provider Name: BBH Holdings

Provider Telephone: 571-678-9090

Address: 200 Middletown Road
Altoona, PA 16601

Payment Address (Remit Payment To): BBH Holdings
PO Box 2546
Altoona, PA 16601

Email Server Settings: Configure

Report Settings: Configure

Provider Logo: Select

Store Exit

2. For the provider, enter:
 - **Name**
 - **Telephone**
 - **Address**
 - **Payment Address** - the address where payment should be sent
 - **Provider Logo:**

Click **Select** to choose a company logo for the bill.



NOTE

The image must be 256x128 pixels in size. If it is not, the image will be scaled by the application, which may result in the image not looking the way you want.

- **Email Server Settings:**

Click **Configure** next to Email Server Settings to open the screen below.

The settings on this screen are used by the software when it automatically emails bills and enabled reports to customers. The automatic Bill Report and Usage Report email feature lets you generate hundreds of automated bills or energy reports. You can configure the system to send out bills to users automatically on a monthly basis. This feature provides you with an automated accounting service and eliminates any need for third party billing providers. You receive feedback of successful transmission for accounting purposes and can set up a cc address so that you receive a copy of the bill or usage report.

Enter the following:

- **From Email:** enter the name that will appear in the emails' From field.



NOTE

When the checkbox next to "Send copy of emails to provider" is selected (checked), a copy of any bill or report email sent to a customer is sent to the From email address.

- **Host Settings:** enter the email's Host Name, Port, and User name and Password if being used.
- **SSL checkbox:** this box needs to be checked if the email server you are using requires SSL security. See the examples below for setting up email.

- **Send Settings:** enter the number of email retries in sending and the Retry Timeout in milliseconds (the default is 1000ms). If you want to disable the Retry Timeout, enter 0 in this field.
- Click **OK** to close this screen. You will see the Provider Information screen.

Email Server Setting Examples:

- Yahoo

Host:smtp.mail.yahoo.com

Port:587

User:Yahoo Account E-Mail Address

Password: Yahoo Account Password

SSL:Check SSL Is Required

-Gmail

Host:smtp.gmail.com

Port:587

User:GMail Account E-Mail Address

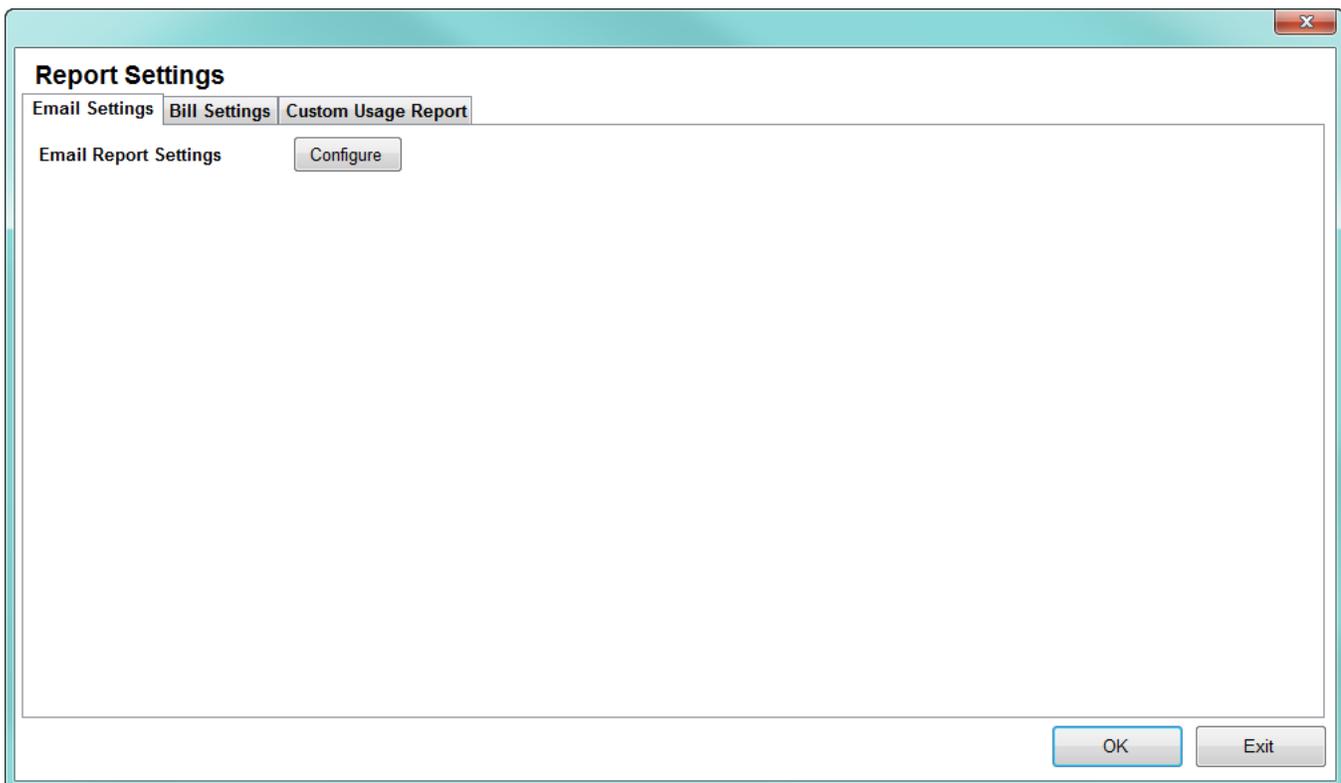
Password: GMail Account Password

SSL:Check SSL Is Required

Note that for Gmail, you also need to enable the setting "Allow access from less secure apps," which is accessed from Gmail Account settings.

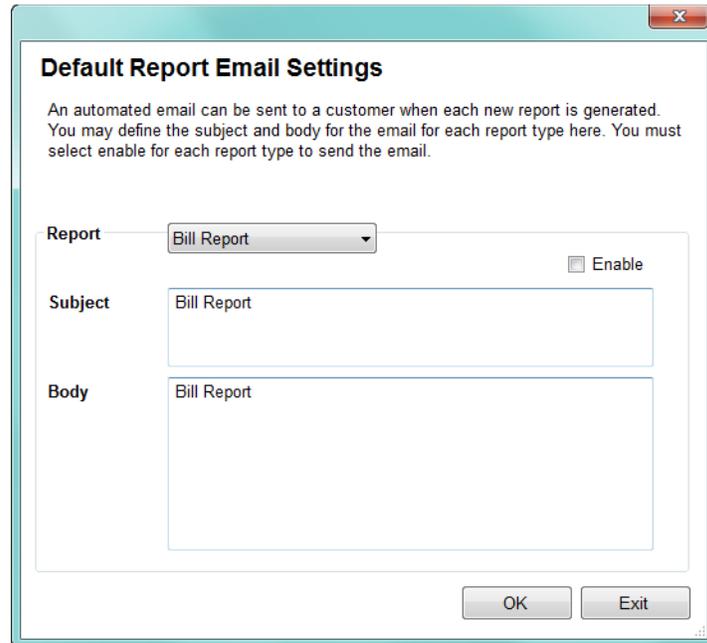
- **Report Settings:**

Click **Configure** next to Report Settings to open the screen below.



This screen lets you set up emails, bills, and custom reports to be sent to the customer.

a. Click **Configure** next to Email Report Settings to set up automatic emailing of bills and/or usage reports. The screen below opens.



Default Report Email Settings

An automated email can be sent to a customer when each new report is generated. You may define the subject and body for the email for each report type here. You must select enable for each report type to send the email.

Report Bill Report Enable

Subject Bill Report

Body Bill Report

OK Exit

- Select **Bill Report** or **Usage Report** from the pull-down menu.
- Click the **Enable** checkbox to set the report to be emailed automatically.
- Enter a Subject line and Body text that will appear in the email.
- Click **OK** to save the settings. The screen closes.



If you want to send both Bill Report and Usage Report, repeat this process.

b. Click the **Bill Settings** tab to enter additional, optional information for the bill.

The screenshot shows a dialog box titled "Report Settings" with three tabs: "Email Settings", "Bill Settings", and "Custom Usage Report". The "Bill Settings" tab is selected. It contains the following elements:

- A checked checkbox labeled "Display Due Period in Bill".
- A "Due Period" field with a spinner set to "14" and the unit "Days".
- A "Usage Display Precision" field with a spinner set to "0".
- A checked checkbox labeled "Enable Bill Notes".
- A "Notes" text area containing the text "Thank you for your prompt payment.".
- "OK" and "Exit" buttons at the bottom right.

- If you wish, click the checkbox next to **Display Due Period** in Bill and select the Due Period, i.e., the number of days from the bill's origination date until the due date.
- You can set the usage display precision from the pull-down menu. This is the number of digits to display for the energy usage reported on the bill. For example, if the meter measures 173.567 kWh in a month, and the precision is 0, then 173 will be displayed. If the precision is 2, then 173.56 will be displayed. Setting the precision higher allows the user to see the precise value of their usage. Note that this setting is only used for display. Internally, the full usage value is used for calculations.
- You have the option of entering text that you want to be printed on the bill. If you want to do so, click the checkbox next to **Enable Bill Notes** and enter the text you want printed on the bill in the **Notes** field.

c. The GE Energy Aggregator application gives you the ability to create custom CSV (comma separated values) usage reports of meters and locations. You can then send these reports to customers, import them into external energy or costing software applications, or use them for further analysis.

- Once a custom usage report is generated, it can be automatically sent via email.
- The report is also saved in the following directory:
C:\Users\Public\Public Documents\GE Applications\Energy Aggregator\Reports\Custom Usage
Note that this path is configurable - see "Path Setting" on page 8-15, for

instructions on configuring the path.

- To set up a custom report, click the **Custom Usage Report** tab.

Report Templates box - click green plus icon to add a report to the list

Name of the report currently selected in the Report Templates box

Report Fields - click the green plus icon to add a field to the report

Click to delete the selected report

Click to add a report

Default and New Reports

Click to copy the selected report template

Additional settings - auto generation, report period, email settings, etc.

Click to view a preview of the report

Custom Field	Column Header
cust.name	Customer
loc.name	Location
meter.name	Meter
meter.serial	Serial #
data.kWh.start.date	Start Date
data.kWh.start.value	Start Usage
data.kWh.end.date	End Usage Date
data.kWh.end.value	End Usage
data.kWh.demand.peak.date	Peak Demand Time
data.kWh.demand.peak	Peak Demand

Any reports already created are shown in the **Report Templates** box on the left side of the screen. There is a default custom report already available for use - click on it to see the fields in the default report.

Create a New Custom Usage Report

To add a new report, click on the green plus sign icon (to delete a report, click on it in the list and then click the red minus sign icon). Make the following settings:

- Report Name:** Enter a name for the report in the Report Name field. This name will be used as the first part of the filename when the file is saved, followed by the report period starting date, and then the type of report, e.g, monthly. For example, Special customers.2015-10-28.Monthly for a report named Special customers, on a monthly schedule, and containing data for October 28, 2015 to November 27, 2015.
- Auto Generate:** If you want the report to be automatically generated on its period schedule, click the **Auto-Generate** box to check it.

Note that you can generate the report manually at any time via the GE Energy Aggregator Dashboard Viewer - see "Generate Custom Reports" on page 6-18, for instructions.

- **Location Report:** The Location Report checkbox determines whether the report gives the requested information for each meter in the location (box unchecked) or for the locations as a whole (checked). You may want a more detailed report of all of the meters in a location for analysis, and you may want a report of locations as a whole to use for billing. Select whichever option is best for your needs.
- **Report Period and Period Start:** Select the Report Period (Daily, Weekly, Monthly, or Yearly) and Period Start (1st - 28th) from the pull-down menus. When the report is generated automatically, these fields determine both the length of the report, for example - a months' worth of data; and when the report starts, for example on the 5th of the month. For example, if you select "Monthly" and "5," the report will contain data from the 5th of each month to the 4th of the next month.
- **Scope:** The Scope setting controls which meters and locations are included in the report. Select All, Customer, or Location from the pull-down menu.
 - If you select All, the report will be generated with the requested data from all meters, in all locations, and from all customers.
 - If you select Customer, the report will be generated for all meters, in all locations for just the customer you select in the Target field.
 - If you select Location, the report will be generated for all meters in the location you select in the Target field.
- **Target:**
 - If you select Customer for the Scope setting, select the customer you want to print the report for, from the pull-down menu.
 - If you select Location for the Scope setting, select the location you want to print the report for, from the pull-down menu.
- **Include Virtual Aggregate Meter:** The Aggregate meter is a virtual, i.e., non-physical meter, that contains the totalized readings from all of the meters at a location. If you want to include this in your report, click the **Include Virtual Aggregate Meters** checkbox to select it.

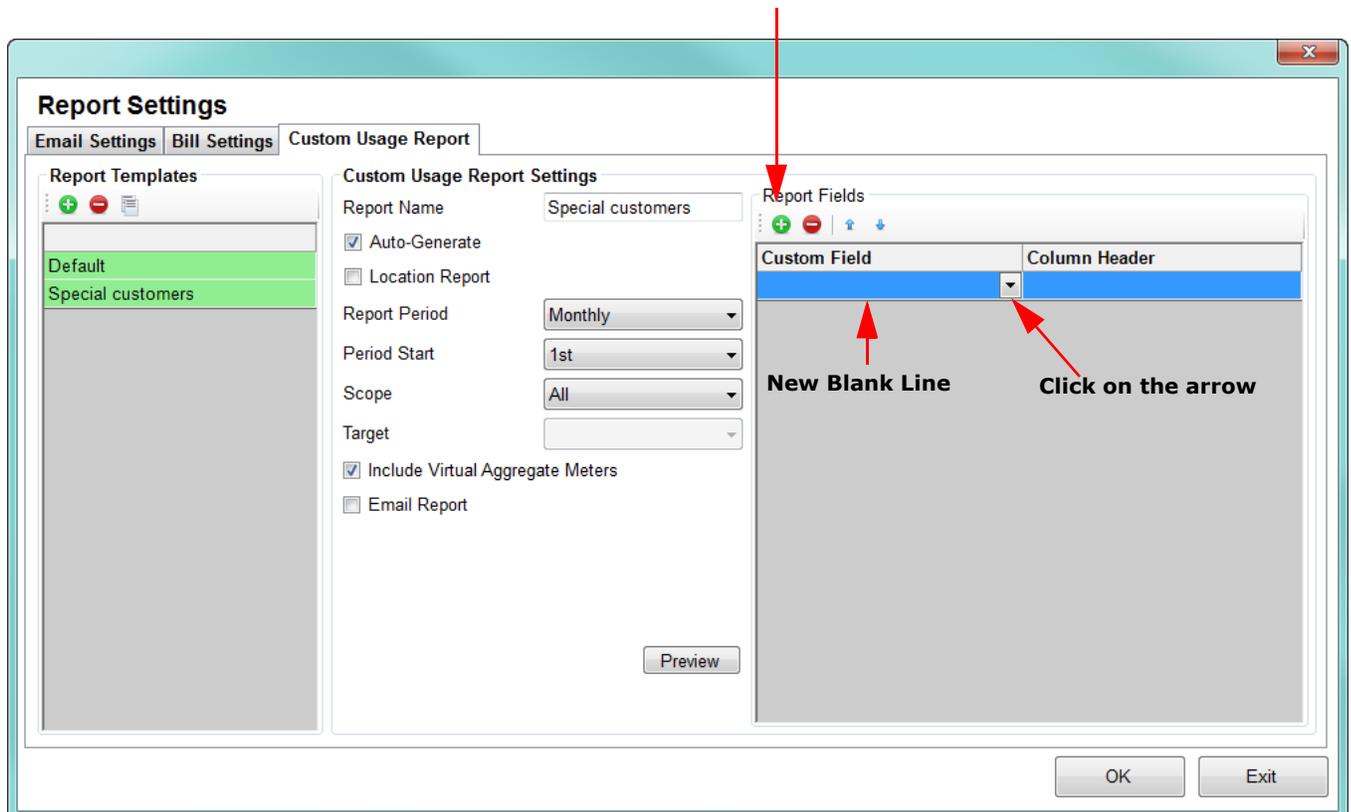
Automatically Email the Custom Usage Report

- **Email To:** The custom usage report can be automatically emailed to your customer and others, e.g., you, as the Provider. If you want the report to be emailed, click the **Email Report** box to check it.
 - You will see the Email To field and CC fields.
 - Enter the email address.
 - You can choose to send a copy of the email to the Provider and/or the customer, by clicking the box next to each option to check it.
 - When Customer is selected in the Scope field, the email will be CC'd to the email address configured in the customer's information - see "Set Up a Customer" on page 5-38.

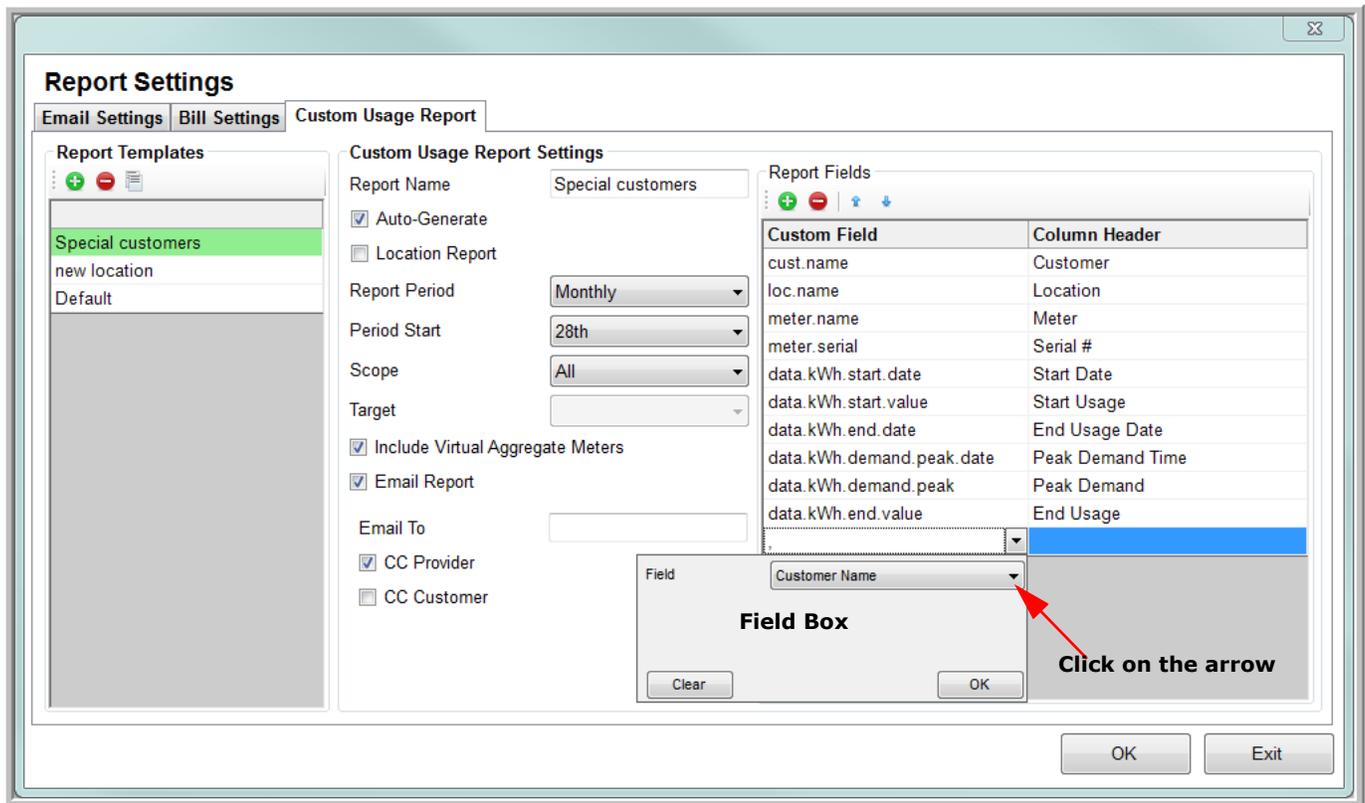
Set Up the Custom Usage Report Fields

- **Report Fields:** The Report Fields box lets you set up the actual data and report headings that will be in the report, called Custom Field and Column Header in the screen.
 - Click the green plus sign icon.
 - A blank line is added in the Custom Field section.

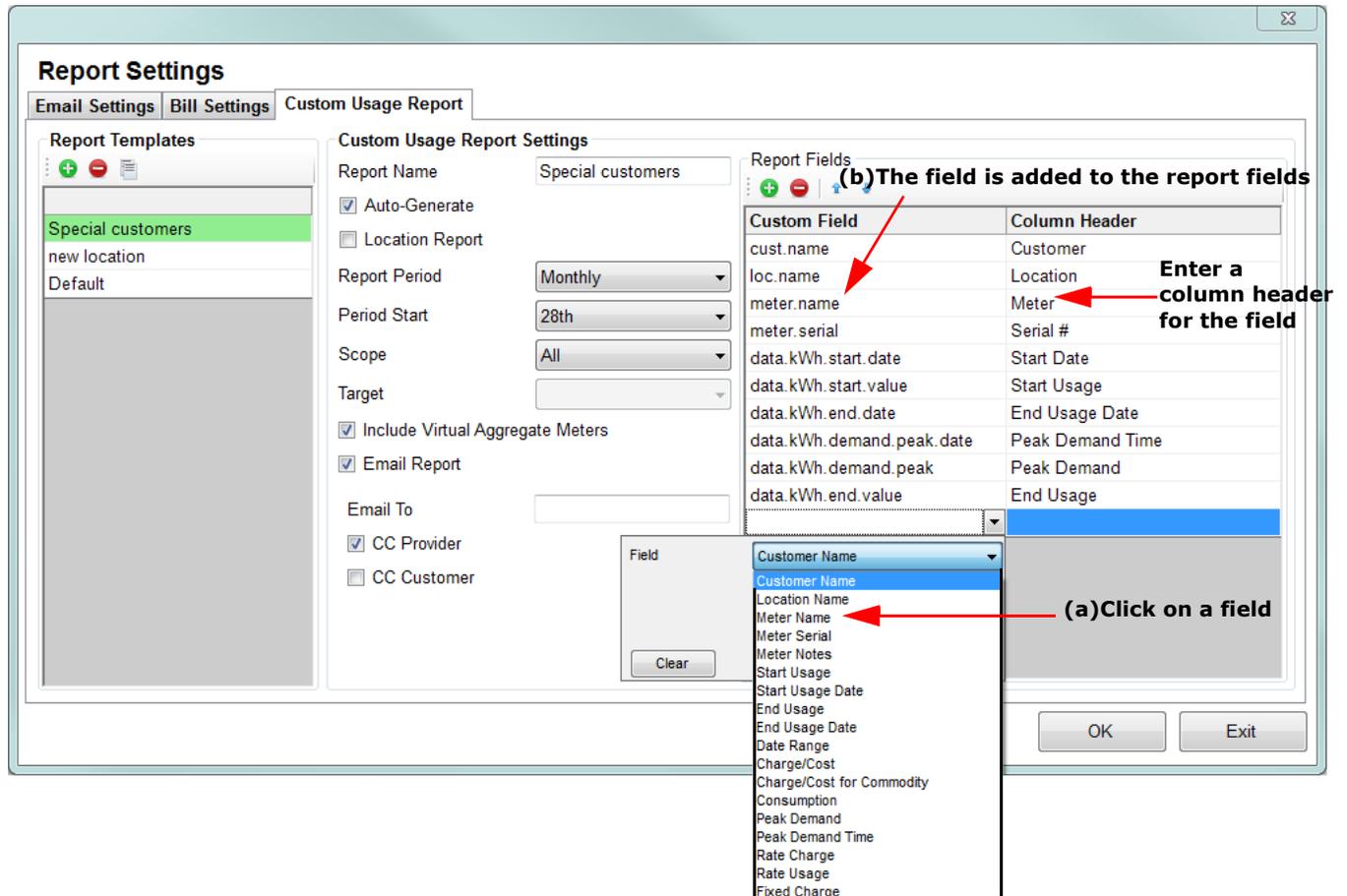
Click on the green plus sign icon to add a field



- Click on the arrow in the blank line in **Column Field**.
- A **Field** box opens. Click on the arrow in the box.



v. The available data fields are shown in the list that is displayed - see the example screen, below. (a) Click on a field to (b) add it to the blank line in the **Custom Fields** section.



vi. Enter a Column Header for the field. See the example fields and headers in the screen, above. The name you enter in the column header field will be the column heading in the CSV file.

- You can remove a field by clicking on its line and clicking the red minus sign icon.

- The up and down arrow icons let you move a field up or down in the list, to change where it appears in the report.

- **Preview:** You can generate a preview of the report by clicking the Preview button. The report will be opened in Excel. This lets you see how the report will look when it is generated.

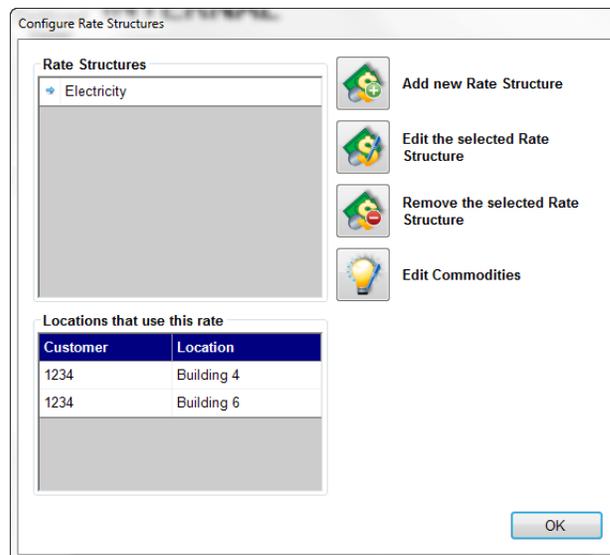
Click **OK** to save your selections. You will be returned to the Provider Information screen.

3. Click **Store** to save your entries and then click **Exit** to close the screen.

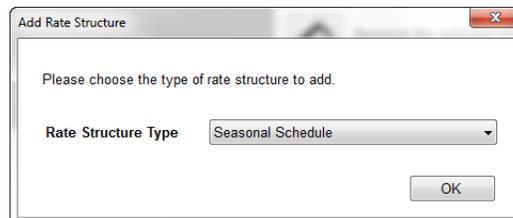
5.2 Set Up Rate Structures

The next step is creating rate structures that will be applied to billed usage at locations.

- A rate structure is the way in which energy usage costing is calculated in monetary numbers. For example, if in an American jurisdiction, the rates will be set up in US dollars.
 - Each utility has a different method of calculating rates for electrical usage. For this reason, the user can set up the rate structure to mimic what the utility is generally doing.
 - You can set up one rate structure for each commodity at a location.
 - Multiple locations can use the same rate structure.
1. From the GE Energy Aggregator Settings Editor main screen, click the **Edit Rate Structures** icon.



2. If you have already set up rate structures, you will see those in the box on the left. To add a new rate structure, click the **Add New Rate Structure** icon.



3. Select **Seasonal Schedule** or **Flat Rate** from the pull-down menu and click **OK**.
 - Select **Seasonal Schedule** to set up a rate structure with different rates for different times of the day, week, and/or year. Then continue with step 4 on page 5-15.

- Select **Flat Rate** to set up a rate structure with a single rate only (no On Peak/Off Peak, Seasons, Weekend/Weekday or Holiday rates). Then go to step 6 on page 5-31.

4. After selecting Seasonal Schedule, you'll see the screen above. Use this screen to set up all of the information for this rate. Do the following:
 - Enter a name for the rate structure; this name will appear on the bill.
 - Select **Commodity** from the pull-down menu. A commodity is a usage value the software uses when computing the rates for a bill from the imported Energy or other commodity data. You can select an existing commodity, or **Create New**. For Energy usage, select kWh. When the bill is generated, the software uses the rate structure for the commodity, e.g., kWh, to determine the charge for the amount of usage the customer has for the billing period, e.g., total kWh.

If you select **Create New**, you will see the screen shown below, which lets you set up a new commodity to use.

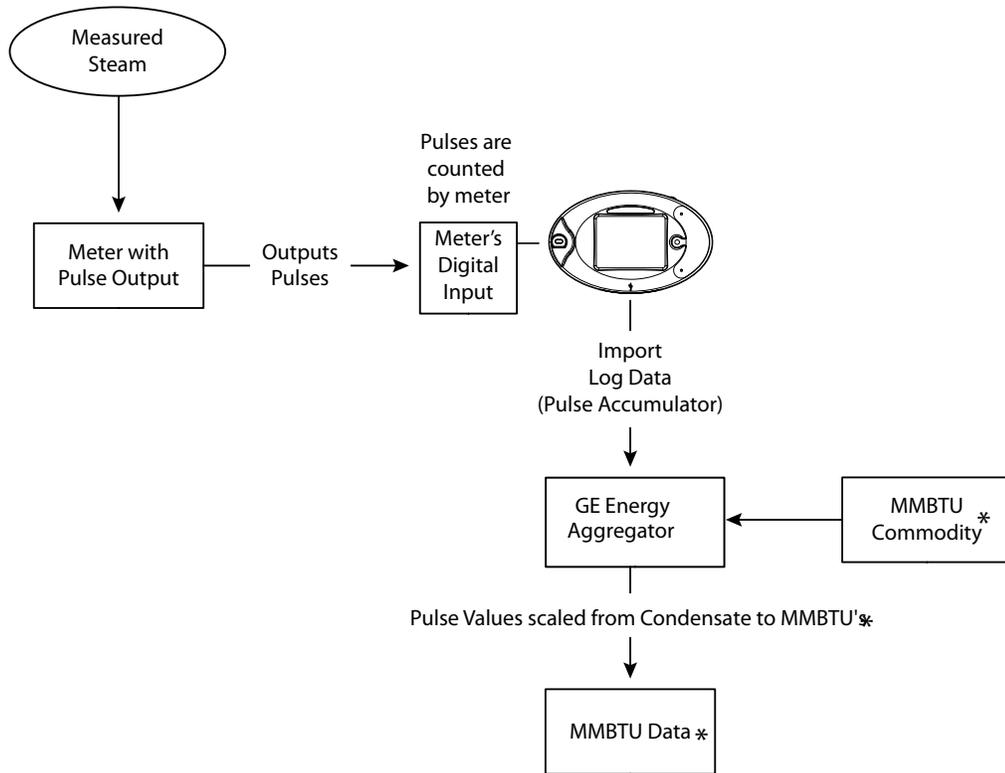
- a. Enter a name for the new commodity.
- b. Select the scalar from the pull-down menu - you can select Unit (1), k(1000), M(1000000) or **Custom** (Infinity). If you select custom, another field opens up on the screen for you to enter the Custom Scalar value.

The scalar you select is applied to the commodity's usage values for all of the meters. This is important because the meters themselves may have been set up with different scaling values. The scalar insures that the usage values will all be scaled the same way in the GE Energy Aggregator application.

When you are tracking usage other than Energy, a custom scalar can be used to change the unit measured. For example, if you are tracking Condensate (steam), the meter's pulse accumulator channel, i.e., Digital Input, records the number of pulses coming from the Condensate meter which is measuring the steam directly. But you may need to convert the pulse accumulation value to MMBTUs for your billing. In this case, you would use the scalar to convert the number of pulses to the MMBTU usage value. See the following figure and example screen.

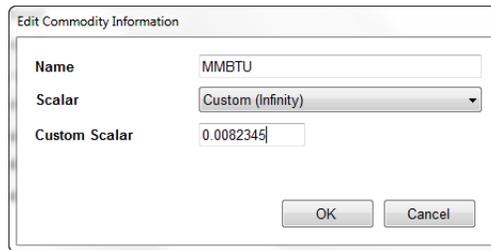
Figure 5-2: Scalar Example for Commodities Other Than Energy

Pulse Accumulation Measurement Example
 -This example converts measured condensate to MMBTU's



* To convert condensate to MMBTU, configure the scalar for the commodity. This value should be the value to convert 1 pulse to MMBTU. For example, if 1 pulse = 1 kgallon of steam, and 1 gallon of steam equals 8.2345 MMBTU, then the scalar should be 0.0082345.

Figure 5-3: Scalar Example for Commodities Other Than Energy



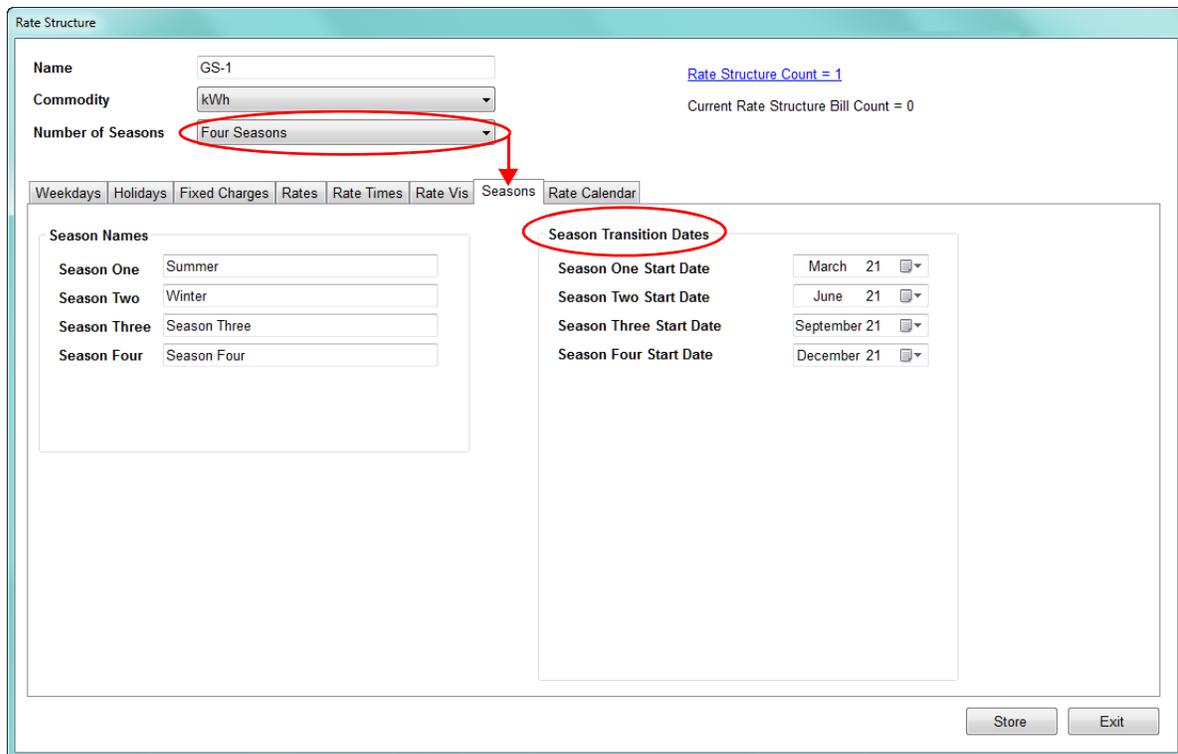
c. Click **OK** to save your entries and close the screen (click **Cancel** if you want to close the screen without saving your entries).

- The other settings for rate structure are as follows:

Seasons Setting

Some utility companies bill their customers higher rates at different times of the year. The reason for this is that it may be more costly for utilities to generate or buy electricity during peak seasons.

The Seasons setting lets you set up different rates for up to four different times of the year that you may need in your rate jurisdiction. Select the number of seasons from the pull-down menu. If you select more than one season, you will see a Seasons tab that you will use to set the seasons' dates. You use the **Rates** tab to set different On-Peak and Off-Peak rates for each season, and you use the **Rate Times** tab to assign On-Peak and Off-Peak to different days and times of the day, for each season.





The Monthly setting for Number of Seasons allows for a different season to be applied to each month of the year. Each monthly season applies from the first of the month to the first of the next month. For example, the July season will apply from July 1st to August 1st. The **Seasons** tab for the Monthly setting shows all twelve seasons.

Weekdays/Weekends

A weekday is usually billed at a higher time of use rate than a weekend. For this reason, you can select what days are designated as a weekend in your jurisdiction.

Click the **Weekdays** tab to designate days as weekday or weekend (this is the tab view you see when the screen first opens). You use the Rates tab to set different rates for weekends and weekdays.

Holidays

A holiday is a day that is billed at a different rate than a weekday or a weekend. Typically, it is considered an off-peak time, which will be billed at a lower rate.

The GE Energy Aggregator application configures holidays based on a perpetual calendar. A perpetual calendar allows you to set up the holidays once and from then on have the software determine all the future holidays based on the rules you set up.

You can set up different Holiday rates for different seasons.

Click the **Holidays** tab.

Rate Structure

Name: SCE TOU-8-B Rate Structure Count = 1

Commodity: kVAR Current Rate Structure Bill Count = 0

Number of Seasons: Two Seasons

Weekdays | **Holidays** | Fixed Charges | Rates | Rate Times | Rate Vis | Seasons | Rate Calendar

Holiday	Rule	Example
January 1st	1st of January	1/1/2016
Easter	Easter	3/27/2016
Memorial Day	Last Monday of May	5/30/2016
July 4th	4th of July	7/4/2016
Labor Day	First Monday of September	9/5/2016
Veterans Day	11th of November	11/11/2016
Thanksgiving	Fourth Thursday of November	11/24/2016
Christmas	25th of December	12/26/2016

Add new Holiday
 Edit selected Holiday
 Remove selected Holiday

Use this screen to designate days that will use the Holiday rate. Once you setup the holidays you use the **Rates** tab to enter the Holiday rate.

a. Click the **Add New Holiday** icon.

Edit Holiday

Holiday Name:

Every Nearest Monday Nearest Weekday
 The of
 Specific Day
 Special Days

b. Enter a name for the holiday.

c. You have these options for setting up the holiday:

- Click the radio button next to **Every** and select the month and day from the pull-down menus, e.g., January 1. The nearest Monday and Nearest Weekday checkboxes are used for holidays that are changed to another day of observance if they fall on a Saturday or Sunday. If the holiday will be celebrated on the following Monday if it falls on a weekend, click the **Nearest Monday** checkbox. If the holiday will be celebrated on the nearest weekday if it falls on the weekend (i.e., Friday if the holiday falls

- on Saturday, or Monday if it falls on Sunday), click the **Nearest Weekday** checkbox.
- Click the second radio button and select First, Second, Third, Fourth, Fifth, or Last from the first pull-down menu; select the day of the week from the second pull-down menu; and select the month from the third pull-down menu, e.g., The Third Thursday in November for U.S. Thanksgiving Day.
 - Click the radio button next to **Specific Day** and click the pull-down menu to open a calendar that lets you choose the day of the holiday that only occurs once.
 - Click the radio button next to **Special Days** to select a holiday that doesn't follow any of the above rules, such as Easter.
- d. Click **OK** to save the holiday and return to the Holidays tab screen.



NOTE

- To edit a holiday, click on the holiday in the list and click the **Edit Selected Holiday** icon. You will see the same screen as when you are adding a holiday, but it will show the holiday's settings. Change what you want and click **OK** to save the changes.
- To delete a holiday, click on the holiday in the list and click the **Remove Selected Holiday** icon. You will see a **Confirmation** window asking if you are sure you want to remove the holiday - click **Yes** to remove; click **No** to keep the holiday.

Fixed Charges

A fixed charge is a charge that is added onto the bill.

Click the **Fixed Charges** tab to configure single charges you want to be applied to the commodity when the bill is generated.

Rate Structure

Name: Rate Structure Count = 1

Commodity: Current Rate Structure Bill Count = 0

Number of Seasons:

Weekdays | Holidays | **Fixed Charges** | Rates | Rate Times | Rate Vis | Seasons | Rate Calendar

Name	Season	Type	Rate
CTC		Flat Rate	0.00505
DA CRS DWR bond		Flat Rate	0.00505
Noble Americas		Flat Rate	0.067375
Noble Regents Admin		Flat Rate	0.00075
PCIA		Flat Rate	0.01423
Peak Demand		Peak Demand	11.84

 Add Fixed Charge

 Edit selected Fixed Charge

 Remove selected Fixed Charge

You can add a fixed charge, edit an existing fixed charge, or remove an existing fixed charge. You can also assign the fixed charges to any of the seasons you have set up.

a. Click the **Add Fixed Charge** icon. You will see the screen shown below.

Fixed Charges

Charge Type: Flat Rate

Apply To Season: All Seasons

Flat Rate Name: DA CRS DWR bond

Flat Rate: 0.00505

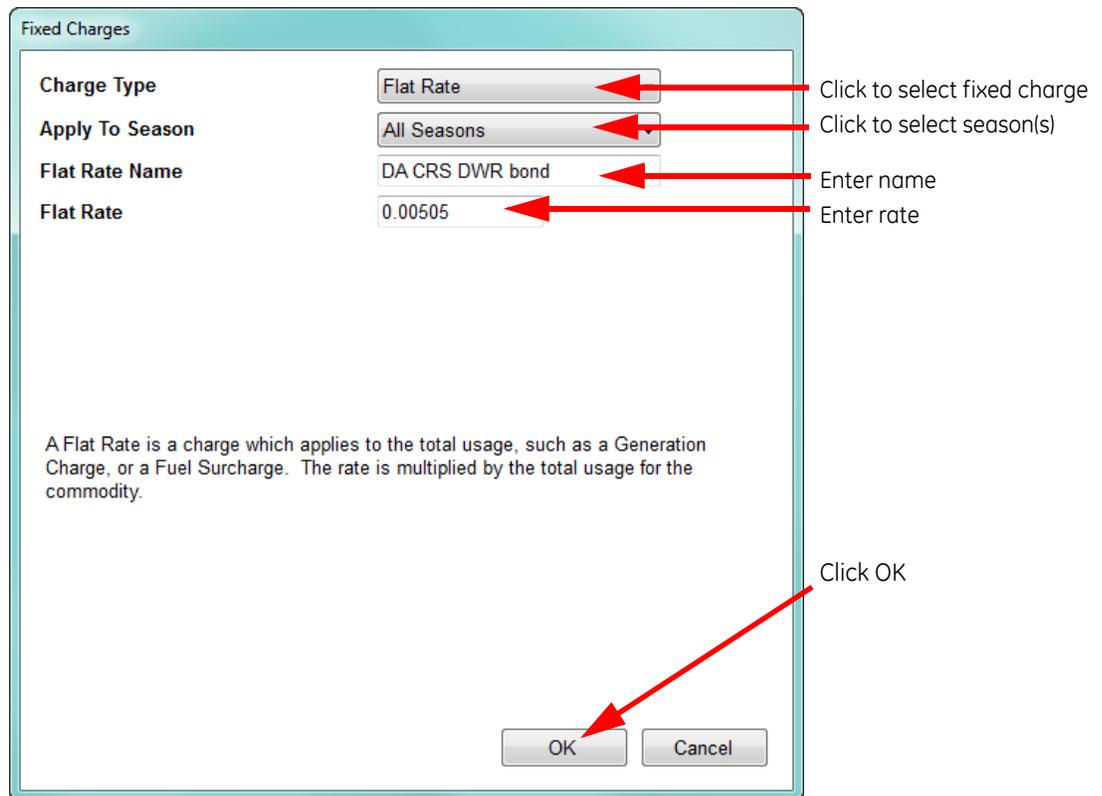
A Flat Rate is a charge which applies to the total usage, such as a Generation Charge, or a Fuel Surcharge. The rate is multiplied by the total usage for the commodity.

OK Cancel

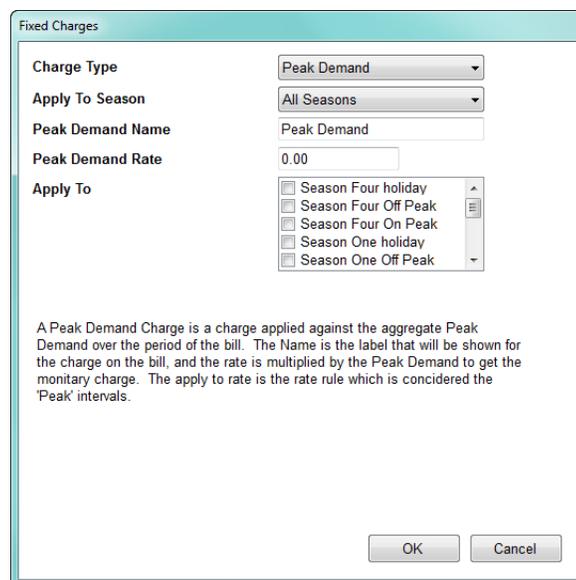
b. Select the **Charge Type** from the pull-down menu. You can select **Fixed**, **Peak Demand**, **Flat Rate**, **Tax**, **Coincidental Peak Demand**, or **Tiered Rate**:

- **Fixed:** select this to add a single charge that is added to the bill when it is generated, regardless of the usage amount, e.g., processing fee.
- **Peak Demand:** select this to enter a **Peak Demand surcharge**, which is an additional charge applied to Peak (highest amount) demand during the billing period (see step d).
- **Flat Rate:** select this to add a charge that applies to the total usage, e.g., a Generation charge or Fuel surcharge. This rate is multiplied by the total usage when the bill is generated.
- **Tax:** select this to enter a tax percentage that will be applied to the total when the bill is generated, i.e., multiplied by the total dollar amount on the bill for the commodity, and added to the bill.
- **Coincidental Peak Demand:** select this to compute the Peak Demand time from a meter at another location, e.g., a Utility meter. The time of the charge comes from the Utility meter, but the charge is applied to the sum of the location's meter(s)' usage. See the example on page 5-18.
- **Tiered Rate:** select Tiered rates to indicate charges that are dependent on the amount of usage during the Bill period. For example, a multiple tiered rate may be defined to encourage energy conservation by charging higher rates for customers that exceed what is considered typical consumption.
- **Daily Charge:** select this to add a fixed charge to the total usage, based on the number of days in the billing period. The bill charge will be the Daily Charge rate multiplied by the number of days in the billing period.

c. For charge types Fixed, Flat Rate, and Taxed, you must enter the Charge Name, select what season(s) to apply it to from the pull-down menu, and enter the Rate (or Percentage for Tax).



d. If you select **Peak Demand**, the screen changes as shown below.



The charge's name defaults to **Peak Demand**, though you can change it if you want. The name appears on the bill next to the **Peak Demand charge**.

e. Select the season(s) to apply the **Peak Demand** charge to, enter the **Peak Demand rate**, and click the checkbox(es) (rate periods) you want the Peak Demand rate applied to. You can apply it to Holiday, Peak and/or Seasonal Off Peak usage. The Peak Demand rate you enter will be applied to peak demand in the selected rate periods when the bill is generated, i.e. the Peak Demand usage is multiplied by the Peak Demand rate to get the Peak Demand charge.

f. **Coincidental Peak Demand** is a charge applied against the Peak Demand over the period of the bill, where the Peak Demand is computed based on the configured Utility meter, rather than the meters at the location.

For example: 2 locations, with 4 meters, total.

Location 1 has 1 meter, which is the Utility meter that the Peak Demand is based on. The demand values for this meter are shown in the table below.

Time	kWh Reading
12:00	15kWh
12:15	17kWh
12:30	16kWh
12:45	14kWh

Location 2 has 3 meters. The meters' demand values are shown in the table below.

Time	kWh Reading		
	Meter 1	Meter 2	Meter 3
12:00	7kWh	8kWh	3kWh
12:15	4kWh	3kWh	1kWh
12:30	5kWh	1kWh	8kWh
12:45	15kWh	20kWh	9kWh

When the Coincidental Peak Demand fixed charge is set up using the Utility meter, and this rate structure is applied to Location 2, a bill generated for Location 2 will have a Coincidental Peak Demand value of (4+3+1) 8kWh x the fixed charge rate, since the Peak Demand at meter 1 (Location 1) is at 12:15.

The Utility meter can be at any location.



NOTE

The screenshot shows a dialog box titled "Fixed Charges". It contains the following fields:

- Charge Type:** Coincidental Peak Demand (dropdown)
- Apply To Season:** All Seasons (dropdown)
- Coincidental Peak Demand Name:** Peak Demand (text input)
- Coincidental Peak Demand Rate:** 0.00 (text input)
- Coincidental Utility Meter:** (empty dropdown)

Below the fields is a text box with the following text:

A Coincidental Peak Demand Charge is a charge applied against the Peak Demand over the period of the bill, where the Peak Demand is computed on the configured Utility Meter, rather than the aggregation of the meters at the location.

At the bottom right are "OK" and "Cancel" buttons.

After selecting Coincidental Peak Demand, select the season(s) to apply it to, enter a Name and Rate for the Coincidental Peak Demand, and then choose the coincidental Utility meter from the pull-down menu.

g. **Tiered Rate:** a tiered rate gets higher (more expensive) as the amount of energy consumed increases. This rate type is typically used to encourage customers to conserve usage. You would use the Tiered Rate option to set up charges that vary depending on the amount of usage during the Bill period, charging higher rates when their usage exceeds a certain amount.

The screenshot shows a dialog box titled "Fixed Charges". It contains the following fields:

- Charge Type:** Tiered Rate (dropdown)
- Apply To Season:** All Seasons (dropdown)
- Tiered Rate Name:** Tiered Rate (text input)

Below the fields is a table with the following data:

#	Tier	Rate
1	1000	.01
2	2000	.02
	Over 2000	.05

There are "+" and "-" buttons to the right of the table. Below the table is a text box with the following text:

Tiered Rates are charges that vary depending on the amount of usage. For each Tier, add the upper usage for that Tier, and the rate to be applied to that usage. Usage over the highest Tier will be automatically computed. For example, if the first Tier is 1000kWh, and the second Tier is 2000kWh, usage from 0kWh to 1000kWh will be charged to the first Tier, usage from 1000kWh to 2000kWh will be charged to the second Tier, and usage over 2000kWh will be charged to the overage Tier.

At the bottom right are "OK" and "Cancel" buttons.

Select which season(s) to apply the Tiered Rate to, give the Tiered Rate a name, and enter the Tiers information: the highest amount of usage in the Tier (entered in the Tier field) and the rate for the Tier (entered in the Rate field).



The Tiered Rate screen's default is Tiers 1 and 2 and an overage Tier (unnumbered.) Click the + button to add a Tier and then enter the upper usage amount and rate for the Tier. You can click the - button to remove a tier.

For example, in the screen above, Tier 1's rate of \$0.01 is applied to usage up to 1000, Tier 2's rate of \$0.02 is applied to usage from 1001 - 2000, and the overage Tier's rate of \$0.05 is applied to usage from 2001 up.

Let's say the commodity is kWh. Since the rate is multiplied by the amount of usage to get the final charge, you can see the effect of the tiered rate charges in the following table:

Customer	kWh Usage	Tiered Rate Surcharges	Added to Monthly Bill
#1	900	\$0.01 × 900	\$9.00
#2	1500	\$0.01 × 1000 \$0.02 × 500	\$20.00
#3	2500	\$0.01 × 1000 \$0.02 × 1000 \$0.05 × 500	\$45.00

h. Click **OK** to save your settings and return to the **Fixed Charges** tab screen. Your new charge is listed on the screen.



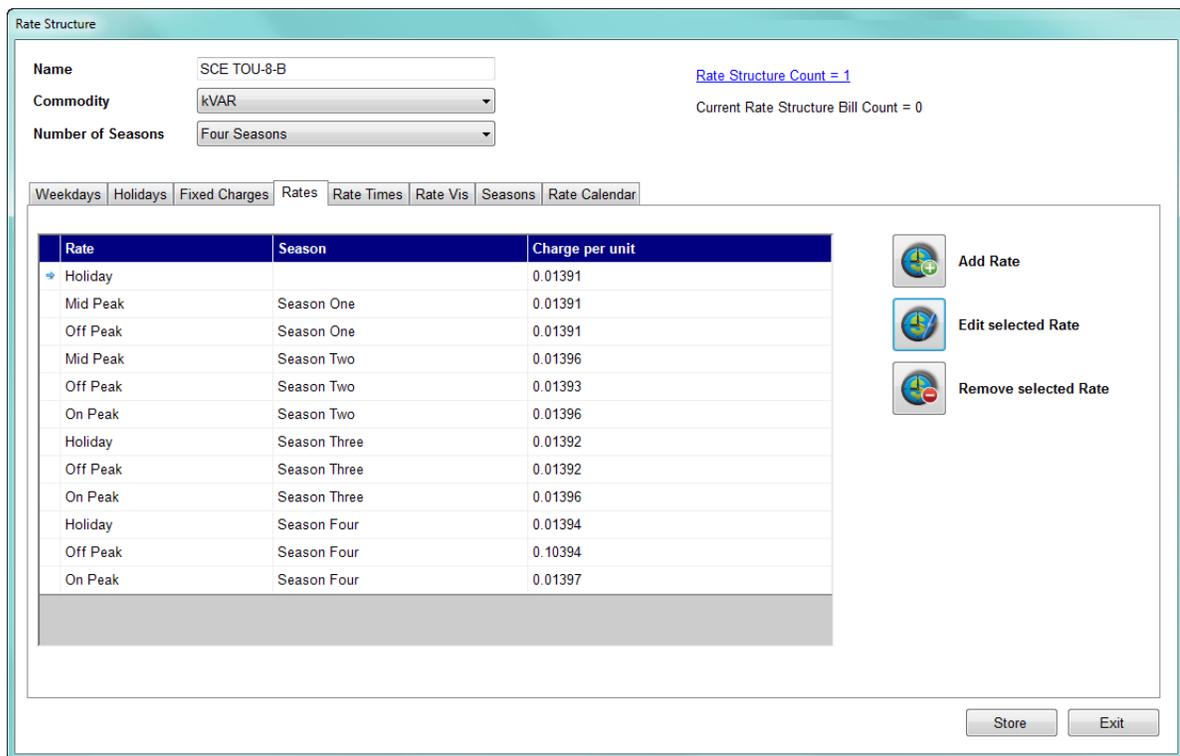
- To edit a charge, click on the charge in the list and click the **Edit Selected Fixed Charge** icon. You will see the same screen as when you are adding a fixed charge, but it will show the charge's settings. Change what you want and click **OK** to save the changes.
- To delete a charge, click on the charge in the list and click the **Remove Selected Fixed Charge** icon. You will see a Confirmation window asking if you are sure you want to remove the charge - click **Yes** to remove; click **No** to keep the charge.

Rates

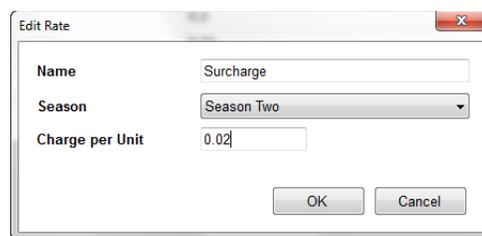
Rates are the amount of money charged per usage commodity. For instance, with electricity, the rate is usually an amount of cents per kWh. On Peak rates often cost more than Off Peak rates. If you are not using Time of Use based rates, then set only one rate and amount. The charge per unit is in dollars and cents, so for 5 cents, enter 0.05.

Click the **Rates** tab to configure specific rates: by Default, On Peak, Off Peak, and Holiday rates. If you have set up seasons, you can configure rates for each season; you can also configure Holiday rates for each season. The rates will be

applied to the usage when the bill is generated, e.g., if you set a rate for Season 1 Off Peak, that rate is applied to all usage that occurs during Off Peak times, during the period designated as Season 1.



a. If you want to use more rates than Off Peak and On Peak, click the **Add Rate** icon.



b. Enter a name for the rate; select the Season the rate will be applied to (if you selected only one season, you will only be able to choose Season One); enter the charge per unit. For Energy usage, this is the charge per kWh.

c. Click **OK** to save the rate and return to the Rates tab screen. The rate you added is now listed in the screen. Make sure you assign Rate Times for this new rate (see below).



NOTE

- To edit a rate, click on the rate in the list and click the **Edit Selected Rate** icon. You will see the same screen as when you are adding a rate, but it will show the rate’s settings. Change what you want and click **OK** to save the changes.

- To delete a rate, click on the rate in the list and click the **Remove Selected Rate** icon. You will see a Confirmation window asking if you are sure you want to remove the rate - click **Yes** to remove; click **No** to keep the rate. If you delete a rate, the rate times assigned to it (see the following section) are reassigned to the next available rate.

Rate Times

Click the **Rate Times** tab to assign different times of the day as on-peak or off-peak, for billing purposes. You set on-peak and off-peak times for both week-days and weekends, as well as for all the seasons you set up for this rate structure. These settings are used to generate the bill by identifying which rate is applied to the usage for the specific time period, e.g., if you set Season 1 Weekend time intervals as all Off Peak, then any usage for Season 1 weekends is charged the Off Peak rate.

Rate Structure

Name: [Rate Structure Count = 1](#)

Commodity: Current Rate Structure Bill Count = 0

Number of Seasons:

Weekdays | Holidays | Fixed Charges | Rates | **Rate Times** | Rate Vis | Seasons | Rate Calendar

Group	Season
✦ Weekday	Season One
Weekend	Season One
Weekday	Season Two
Weekend	Season Two

Select a rate group to edit it's assigned rates.

a. Click on one of the groups to display its settings on the right side of the screen.

Rate Structure

Name: SCE TOU-8-B Rate Structure Count = 1

Commodity: kVAR Current Rate Structure Bill Count = 0

Number of Seasons: Two Seasons

Weekdays | Holidays | Fixed Charges | Rates | **Rate Times** | Rate Vis | Seasons | Rate Calendar

Group	Season
Weekday	Season One
Weekend	Season One
Weekday	Season Two
Weekend	Season Two

Select a rate group to edit it's assigned rates.

Weekday	Off Peak	On Peak
00:00 - 00:15	<input type="checkbox"/>	<input checked="" type="checkbox"/>
00:15 - 00:30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
00:30 - 00:45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
00:45 - 01:00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
01:00 - 01:15	<input type="checkbox"/>	<input checked="" type="checkbox"/>
01:15 - 01:30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
01:30 - 01:45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
01:45 - 02:00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
02:00 - 02:15	<input type="checkbox"/>	<input checked="" type="checkbox"/>
02:15 - 02:30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
02:30 - 02:45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
02:45 - 03:00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
03:00 - 03:15	<input type="checkbox"/>	<input checked="" type="checkbox"/>
03:15 - 03:30	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Store Exit

b. Click in the **Off Peak** or **On Peak** box next to a time range to change its setting. You also have the following multiple selection options:

- You can right-click in the box on the right and select "Set all rate times to either" **Off Peak** or **On Peak**.
- You can select multiple time ranges by clicking on the first rate time you want to change, then holding down the Shift key and clicking on the last rate time you want to change: the rate times you selected are now highlighted in blue. Then right-click in the box on the right and select "Set selected rate times to" either **Off Peak** or **On Peak**.

Seasons Tab

Click the **Seasons** tab to set up the dates for between two and four seasons. The dates for the seasons determine what rate is charged for usage in that time period. The rates are set up in the **Rate Times** tab, which was just explained. So, for example, if you set up two seasons, and you set a Weekday On Peak rate for Season 1 and a different Weekday On Peak rate for Season 2, the program checks the date of usage to see which rate should be applied.



You will only see the Seasons tab if you selected more than one season.

The screenshot shows the 'Rate Structure' configuration window with the 'Seasons' tab selected. The 'Name' field contains 'SCE TOU-8-B', 'Commodity' is 'kVAR', and 'Number of Seasons' is 'Four Seasons'. The 'Season Names' section has four input fields labeled 'Season One' through 'Season Four', each containing the text 'Season One' through 'Season Four' respectively. The 'Season Transition Dates' section has four date pickers labeled 'Season One Start Date' through 'Season Four Start Date', with dates 'March 21', 'June 21', 'September 21', and 'December 21' selected. Two red boxes with arrows point to the text 'Enter Name for the Seasons' (pointing to the 'Season One' input field) and 'Select Start Date for the Seasons' (pointing to the 'Season One Start Date' date picker). The window also shows 'Rate Structure Count = 1' and 'Current Rate Structure Bill Count = 0'.

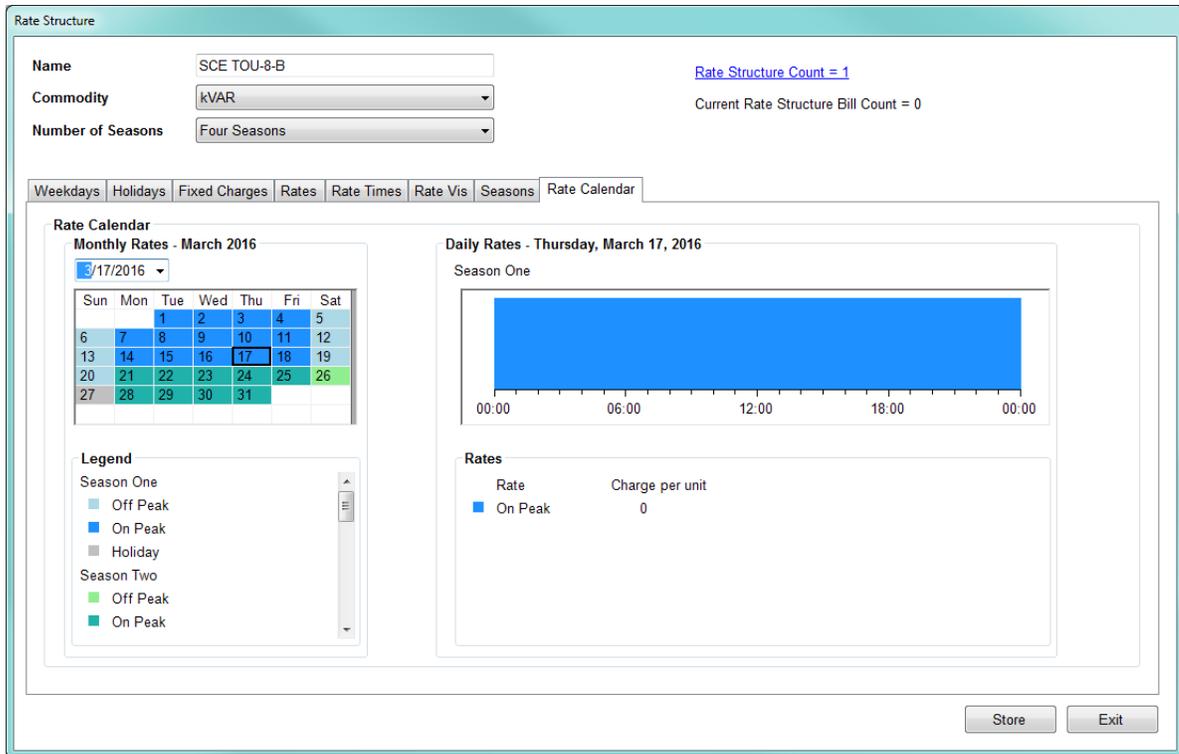
- a. Click in the pull-down menus to display a calendar you use to select the end date for each season. This is the last day the rates for that season are applied to usage.
- b. In each entry field to the right of the season, specify the name to show on the bill for that season.



If you selected the Monthly setting for the number of seasons, you will see twelve season fields. The default name of each season will be the month name, which can be changed. The duration of each season is from the first day through the last day of the month - this cannot be changed.

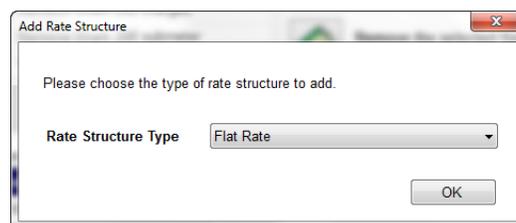
Rate Calendar

The rate calendar provides a graphical means of viewing the rates and the times they are applied to. This is useful to make sure that the system has been set up as you intended.

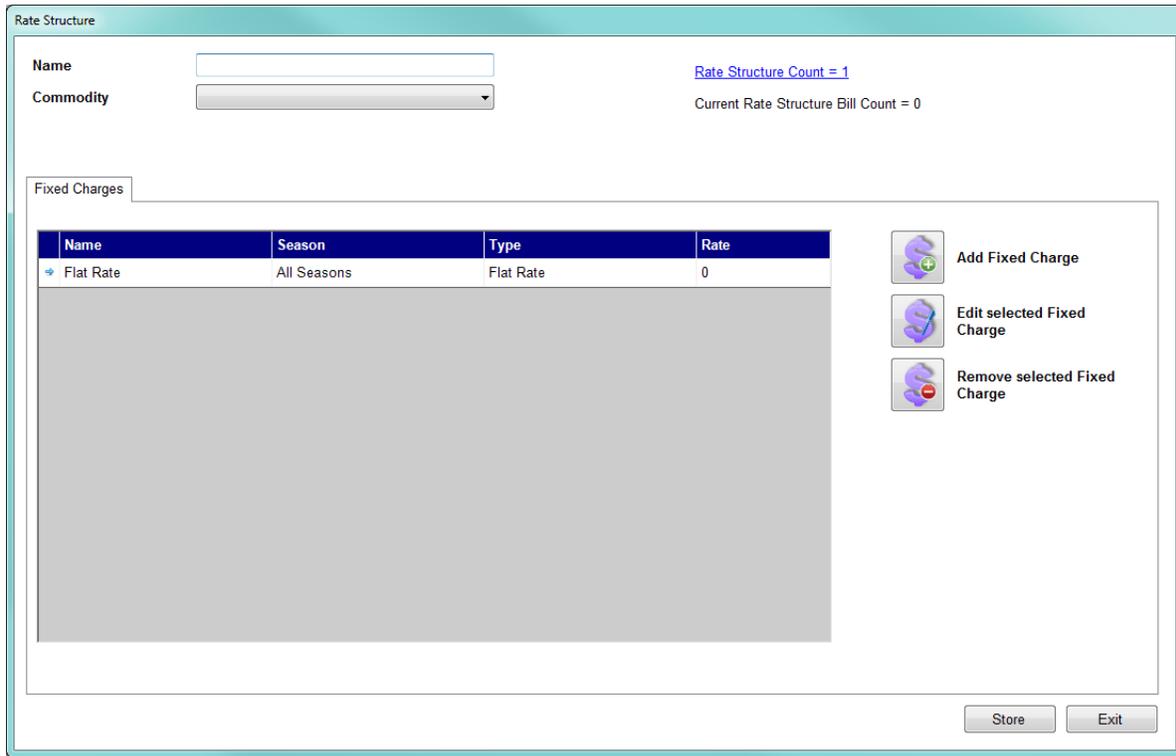


Review your rates on the rate calendar to make sure you have everything set up correctly.

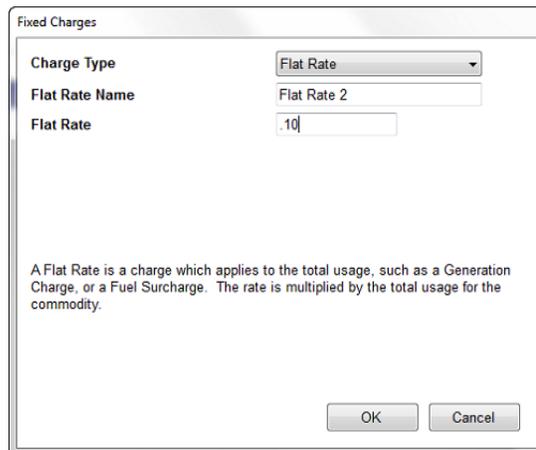
5. Click **Store** to save your rate structure. Instructions for setting up a Flat Rate schedule follow. If you do not need this information, continue to step h on page 5–26.
6. To set up a rate structure with Fixed Charges only (no Time of Use, such as On Peak/Off Peak, Seasons, Weekend/Weekday or Holiday rates), select **Flat Rate** from the **Add Rate Structure** pull-down menu.



You will see a screen similar to the **Fixed Charges** tab of the Seasonal Schedule.



a. Enter a **Name** for the Rate Structure, select the **Commodity** it will be applied to from the pull-down menu, and click **Edit Selected Fixed Charge**.

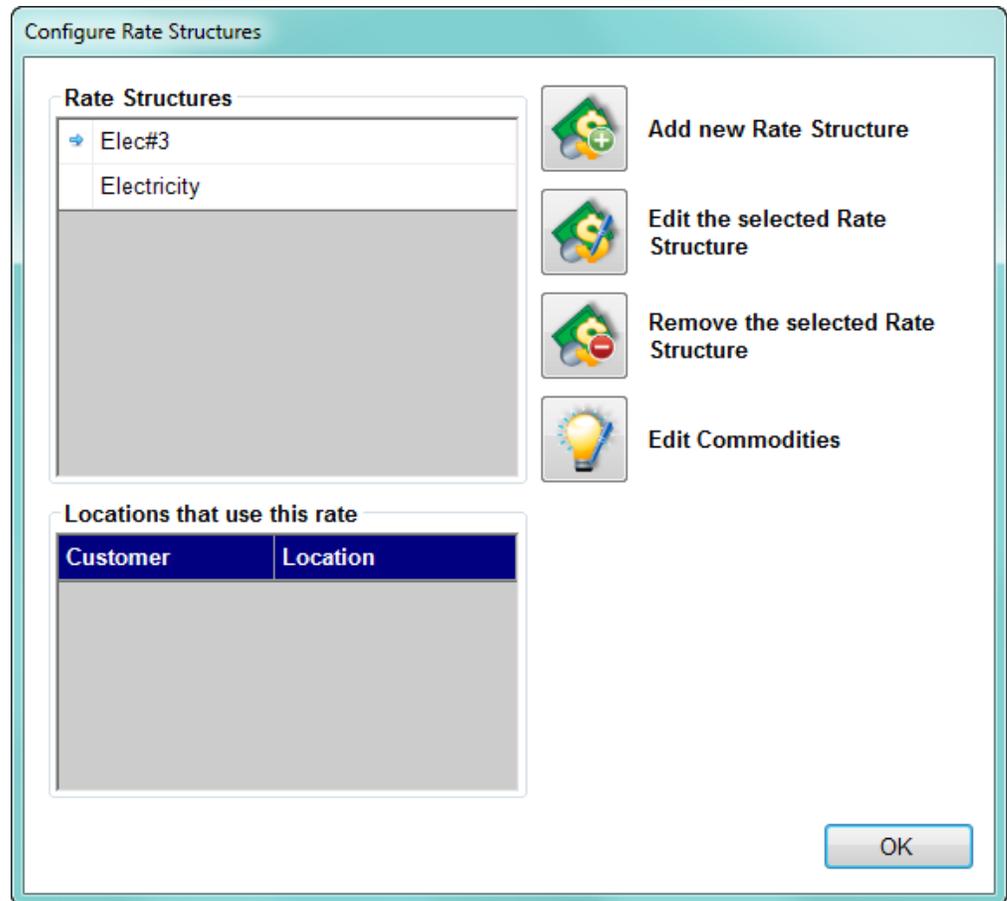


b. Keep the **Charge Type** as **Flat Rate**, and enter a **Flat Rate Name** and **Rate**.

c. Click **OK** to save the fixed charge.

7. Click **Store** to save your Flat Rate rate structure.

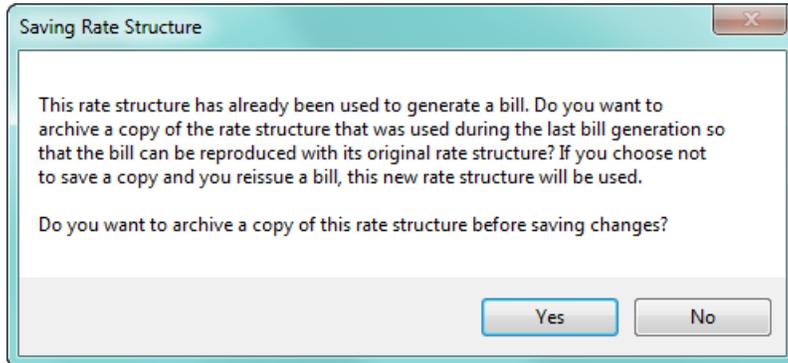
8. Click **Exit** to return to the **Configure Rate Structures** screen. Your new rate structure is now listed in the **Rate Structures** box and there is a new box called **Locations That Use This Rate** at the bottom left of the screen. Once you assign customer locations to this rate, they are listed in the box.



NOTE

- To edit an existing rate structure, click on the rate structure and click the **Edit the Selected Rate Structure** icon. You will see the same screen as when you are adding a rate structure, but it will show the rate structure's settings. Change what you want and click **OK** to save the changes. Any new bills generated will use the changed settings.
- If you edit a rate structure that has already been used for the generation of a bill, you are given the opportunity to archive that rate structure in its pre-edited condition (click **Yes** to archive - see the screen capture, below). This way, previously generated

bills may be reproduced using the rate structure that was in effect at the time the bill was originally generated.

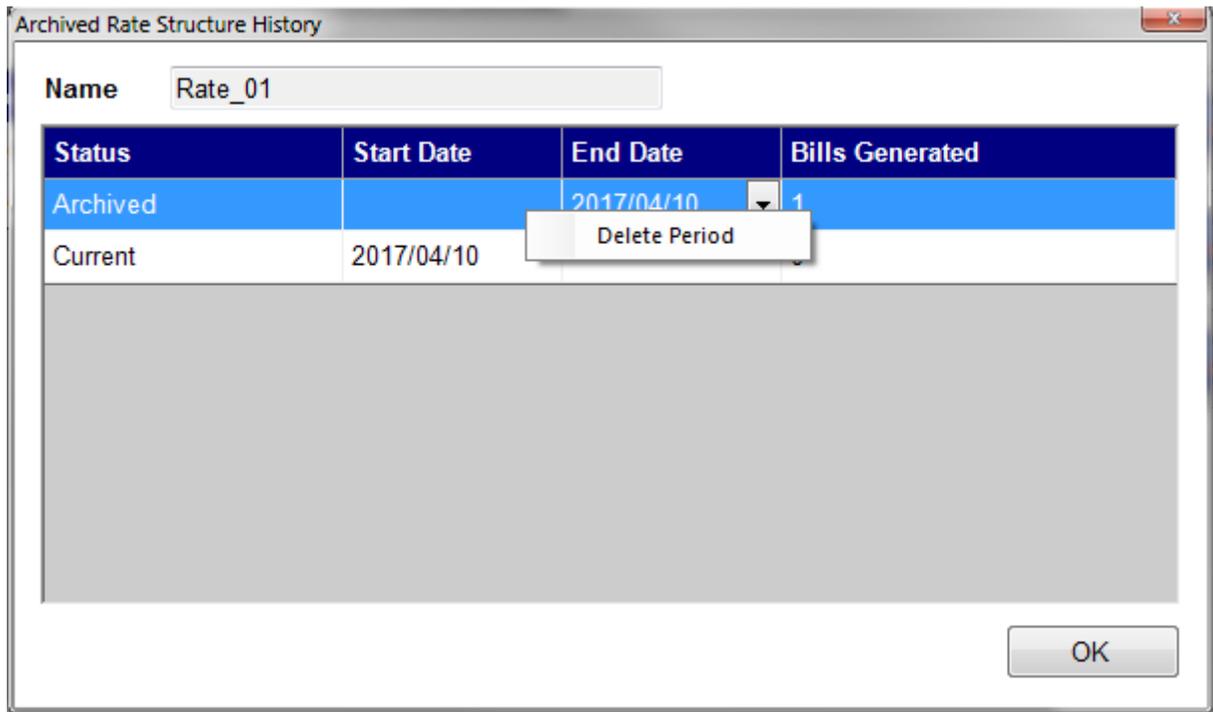


- If you choose not to archive the edited rate structure, a regenerated bill will use the rates defined in the current, edited rate structure.
- Once a rate structure has been archived, the archived copy may not be edited, again; though you can delete it or change its end date - instructions follow.
- If a rate structure has been archived, it will be used to generate cost data in the Usage Dashboard cost graphs for the billing periods when the archived rate structure was still in effect.
- When a rate structure has been archived, you can view the date range and bill count for the archive from the Archived Rate Structure History screen. Click the blue **Rate Structure Count line**, in the **Rate Structure** screen, to open the **Archived Rate Structure History** screen.



- If a rate structure was archived in error, or is no longer needed, you can delete the archive for that date range by right clicking on the archive and selecting **Delete Period**. The archive before the deleted archive is modified to cover the deleted archive's date range. For example, if you delete an archived rate with an End Date of

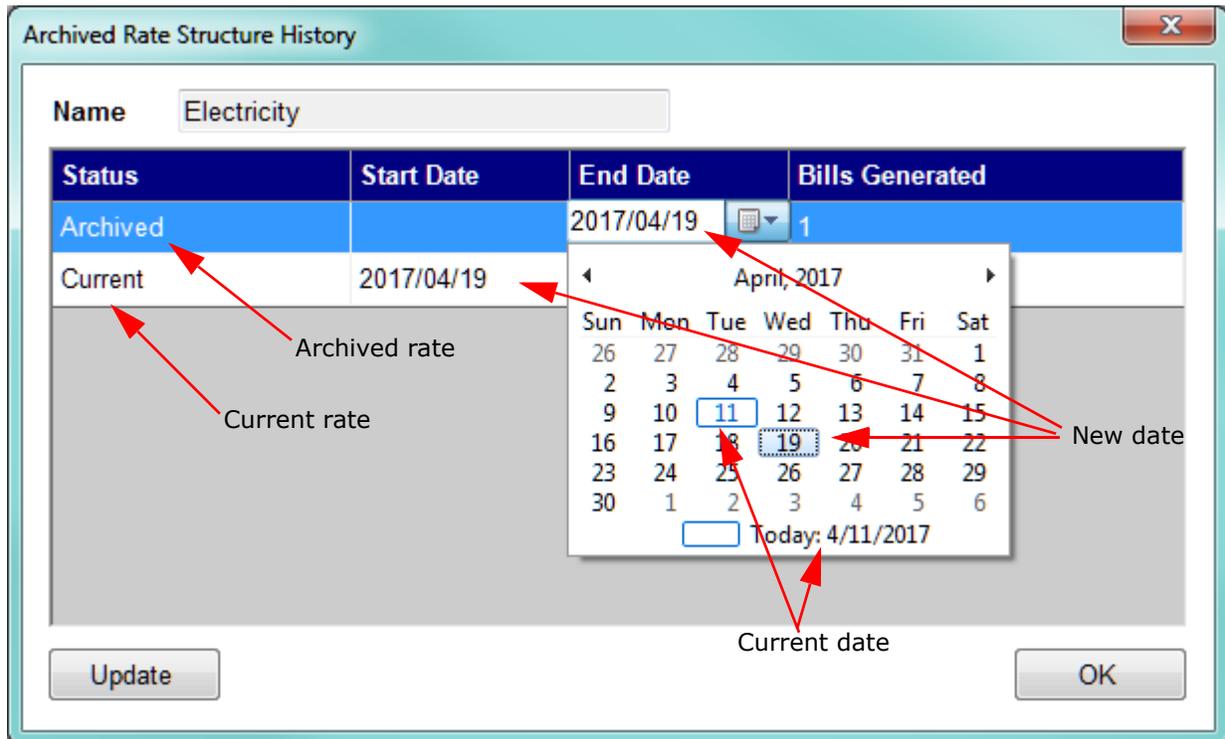
February 2, 2016, the archived rate before that rate will now have an End Date of February 2, 2016. Note that you cannot delete the current rate structure.

**⚠ WARNING**

Deleting the archived rate structure is permanent, and cannot be undone.

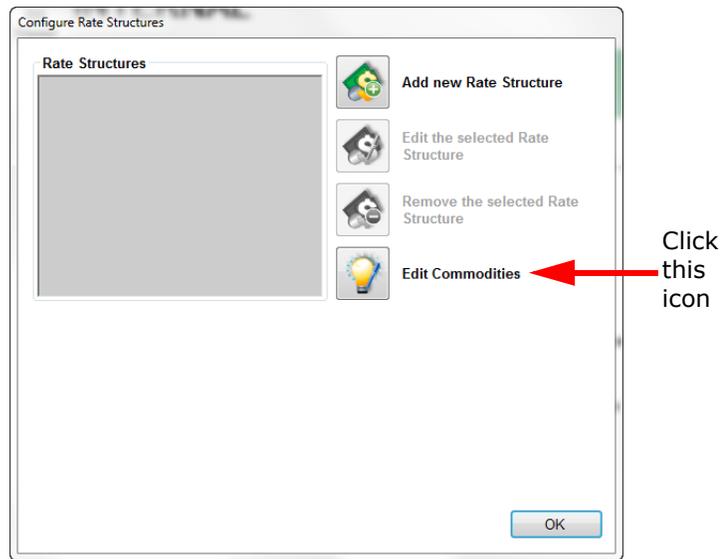
- The Archived rate's End date and the Current rate's Start Date are both defaulted to the current date. If you need a rate structure to take effect on a specific date, you can

accomplish this by editing the End Date for the Archived rate structure listed before the Current rate structure. See the example screen below.

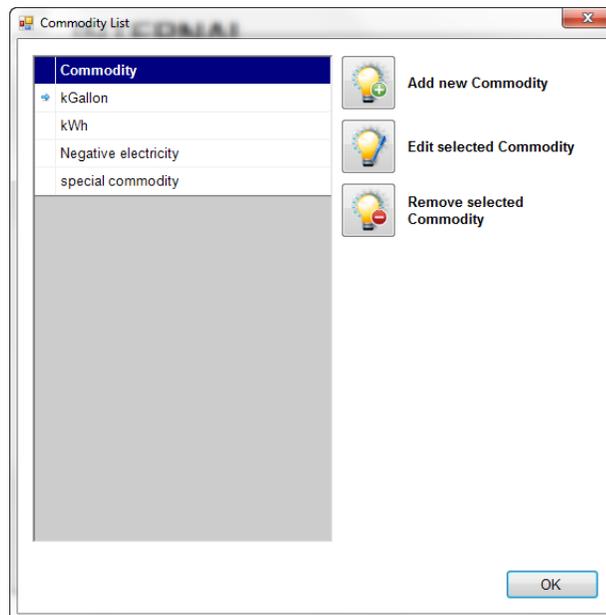


- Click in the **End Date** field of the Archived rate.
 - Click on the arrow to display a calendar.
 - The current date is shown at the bottom of the calendar - in this example, 4/11/2017. When you select a different date by clicking on it in the calendar- in this example, April 19, 2017, the End Date for the Archived rate and the Start Date for the Current rate both change to the new date.
 - When done, click **Update** to store the changes.
- To delete a rate structure, click on the rate structure and click the **Remove the Selected Rate Structure** icon. You will see a Confirmation window asking if you are sure you want to remove the rate structure - click **Yes** to remove; click **No** to keep the rate structure. Removing the rate structure also removes it from any locations using it.
 - You can also add, edit, or delete commodities from the Rate Structures screen.

a. Click the **Edit Commodities** icon.



b. You will see the screen shown below. The existing commodities are listed in the box on the left. To add a commodity, click the **Add New Commodity** icon; to edit a commodity, click on the commodity in the list and click the **Edit Selected Commodity** icon. In both cases you will see the same **Edit Commodity** screen that was explained earlier in this section (beginning on page 4-18).



c. To delete the commodity, click on the commodity in the list and click the **Remove Selected Commodity** icon. You will see a confirmation window - click **Yes** to delete the commodity; click **No** to keep the commodity. Removing a commodity will remove all of the rate structures that use the commodity.

5.3 Set Up a Customer

Next you set up customer information. The customer is the person who will be receiving the bill from the provider. The customer can have one location or multiple locations. The software will generate a bill for each location for this customer.

1. From the GE Energy Aggregator Settings Editor main screen, click the **Add Customer** icon. You will see the screen shown below, but there will be an **Apply** icon in place of the other icons.

2. Enter the following:
 - **Customer ID:** enter a unique identifier for the customer, which will be used to identify this customer.
 - **Customer Name:** enter the customer's name (this does not have to be unique).
 - **Address:** enter the customer's billing address.
 - **Telephone number**
 - **Email Address**
 - **Report Email Settings:** after you click **Apply** you will be able to set up this field.
3. Click the **Apply** icon to save your changes. The message "Values Saved" displays in the bottom left of the screen, and two new icons appear on the screen - Add Location to This Customer and Remove This Customer (shown on the previous screen).



NOTE

If you want to delete the customer, click the **Remove This Customer** icon. You will see a confirmation window - click **Yes** to delete the customer; click **No** to keep the customer. Removing the customer will delete all locations and meters for the customer.

4. After clicking **Apply**, you will also see a **Configure** button next to Report Email settings. Click the button to display the **Report Email Settings** screen.

Customer Report Email Settings

An automated email can be sent a customer when each new report is generated. You may define the subject and body for the email for each report type here. You must select enable for each report type to send the email.

Choose default to use the report email settings defined by the provider.

Report: Usage Report Use Default Enable

Subject: Usage Report

Body: Usage Report

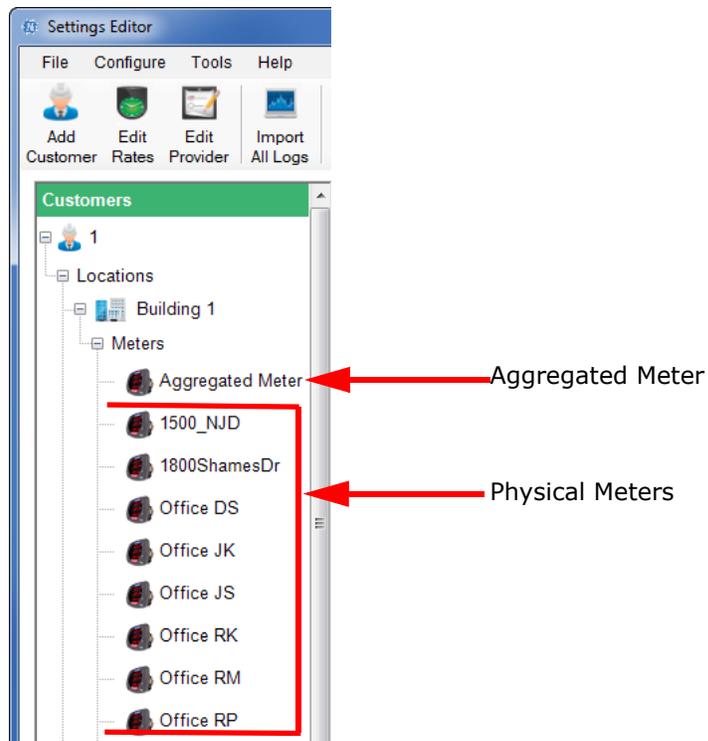
OK Exit

- When this screen first opens, the Use default box is checked and the Subject and Body fields aren't editable. Keep that setting as is, if you want to use the report email settings you already set up in the **Default Report Email Settings** screen (see page 4-6) for this customer.
 - If you want to change the **Subject** and **Body** fields for this customer's usage report and/or bill report:
 - a. Click the **Default** button to disable the default **setting**.
 - b. Select **Bill Report** or **Usage Report** from the Report pull-down menu.
 - c. Enter the Subject and Body text you want to use.
 - d. Click the **Enable** checkbox.
 - e. Repeat these steps if desired, for the other Report option.
 - f. Click **OK** to close the screen.
5. Click **Add Location to This customer** and continue to the next section.

5.4 Set Up a Location and Add Meters to It

Once you have set up a customer, you enter the customer's billing locations. A location is the physical address - the actual location that is consuming the power or other commodity.

- Customers can have multiple locations. They can also have a rate structure for each commodity being billed for at a location, e.g., Energy and gas.
- Each location can have one or more meters attached to it. If there is more than one meter, the software creates a virtual, "aggregated" meter that stores the composite usage data of all the location's meters. Whenever a meter data import is performed, the Aggregated Meter is updated with new usage data for all the meters at that location. The Aggregated Meter is displayed on the main screen of the Bill Settings Editor, in the Location tree.



1. When you click the **Add Location to This Customer** icon, you see the screen shown below. Use this screen to set up information for the billing location.

2. Enter a unique name for the location in the **Location Name** field.
3. Click **Edit** next to **Bill Period** to select a billing period. The billing period is the day of the month on which the bill is computed.

4. From the pull-down menu, select the day of the month you want the billing period to begin and then click **OK**. The **Bill Period** screen closes and the day you chose is displayed in the **Edit Location Information** screen.
5. Add the **Location address**.
6. Click **Apply** to create the location.

A window opens with weather data information based on the address you entered for the location, and asking if you want to enable automatic weather data updates. The GE Energy Aggregator application can get weather data for your locations; that you can then use to compare commodity usage against temperature, humidity, and barometric pressure.

Weather data is collected from an online weather data service provider. The service uses the latitude and longitude of your location to find the closest weather station. The latitude and longitude for this location's address is displayed in the window.

Verify that the discovered weather location is correct, and then click **Yes** to enable automatic weather data updates; click **No** if you don't want to automatically update, or if you want to configure weather data collection manually (instructions on page 5-44).

The screenshot shows the 'Edit Location Information' window with the following details:

- Location Name:** College Park Apartments
- Bill Period:** 6th of the month
- Location Address:** 200 Wopsononock Avenue, Altoona, PA 16601

The 'Weather Data' dialog box displays the following information:

- Weather data is available for this location.
- Station Location: Lakemont, US
- Station Latitude: 40.52
- Station Longitude: -78.39
- Current readings:
 - Temperature: 7.00 Farenheit
 - Humidity: 93.00 %
 - Pressure: 1019.00 mb
- Would you like to enable automatic weather updates for this location?

Buttons for 'Yes' and 'No' are visible at the bottom of the dialog box. The main window also has 'Store' and 'Exit' buttons at the bottom right.



NOTE

- The default for weather display is Fahrenheit. You can change it to Celsius through the Options screen's Configuration tab. See Section 7.4.2 for instructions.
- You can disable the automatic configuration of weather data through the Option screen's Configuration tab. See Section 7.4.2.
- Weather data consists of temperature, humidity and barometric pressure. Usually, the weather station updates this information not more than once an hour; but it may choose to limit the number of requests that can be fulfilled per hour.

7. The screen changes to offer more options.

Edit Location Information

Location Name: 1800 Shames Dr

Bill Period: 4th of the month Edit

Location Address: 1800 Shames Dr
Westbury, NY 11590

Weather Data

Settings	Enabled	Configure
	Weather	Open Weather Map
	Latitude	40.75566
	Longitude	-73.58763

Rate Structure

- GS-1

Meters

- Office_DS
- Office_JK
- Office_RM
- Office_RP
- Shark200_Unit9
- Shark200T_Unit4

Actions:

- Add a Meter to this Location
- Add Rate Structure
- Edit Rate Structure
- Remove Rate Structure
- Remove this Location

Store Exit

The new options let you:

- Configure weather data collection manually
- Add a meter to this location
- Add a rate structure to this location
- Edit a rate structure for this location
- Remove a rate structure from this location
- Remove this location

In addition, there are two boxes on the screen - one for Rate Structures assigned to this location, and one for meters assigned to this location. When you are adding a new location, these boxes will be empty, but if you are editing an existing location, there will be entries in the boxes.

Enable Weather Data Collection Manually

If you want to manually enter or edit weather data collection settings for a location:

- a. Click the **Configure** button in the Weather Data section of the screen.

Location Weather Data Settings

Enable weather data collection

Search

Address: Altoona, PA 16601

Station

Location:

Latitude:

Longitude:

- b. The **Enable Weather Data Collection** checkbox is checked, and the **Latitude** and **Longitude** of the location you entered is displayed.

- To disable collection of weather data, uncheck the **Enable** box.
- To search for a different location's information, enter the City, State, and Zip Code in the **Address field** and click **Search**.
- To see weather and weather station information, click **Test**. You will see a screen similar to the one shown below.

Open Weather Map

Station Location: Village Green-Green Ridge, US
 Station Latitude: 39.87
 Station Longitude: -75.45

Temperature: 39.36 Degrees Fahrenheit
 Humidity: 100.00 %
 Pressure: 1013.00 mb

Last Update: 3/31/2017 10:51:00 AM

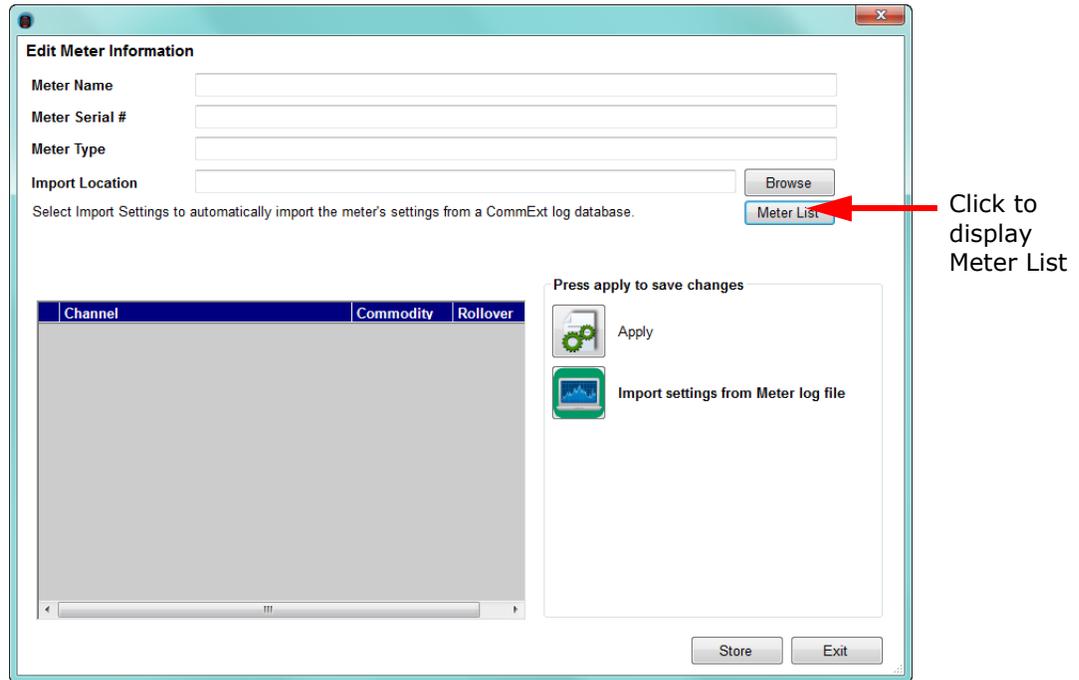


If you chose not to enable weather data collection earlier (see step 6), the **Enable** button will not be checked and the locations' city, state, and zip code will be in the Search field. Click the **Enable** button and then click **Search** to find the address's longitude and latitude.

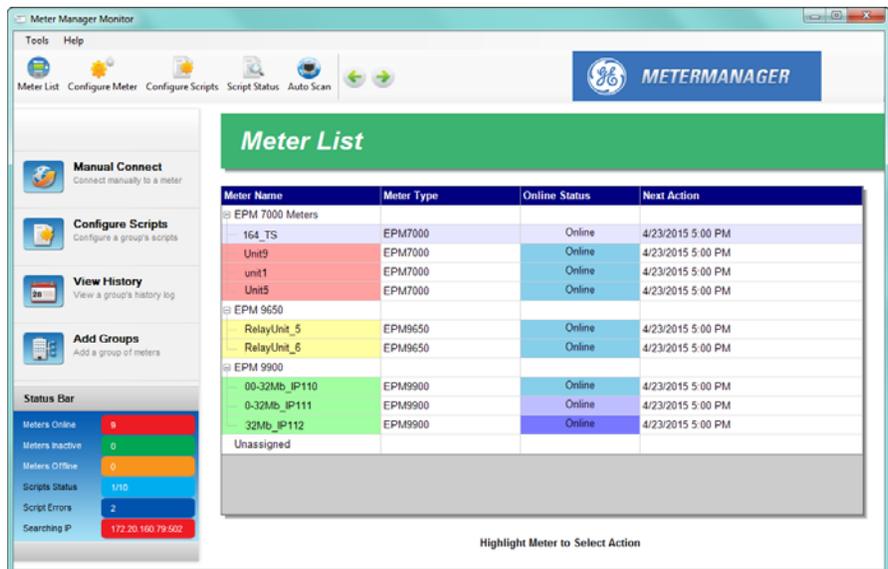
- c. Click **OK** to close the screen.

Add a Meter

- Click the **Add a Meter to this Location** icon.



- Click the **Meter List** button to display the meters that have been added through the GE MeterManager application (explained in Chapter 2).



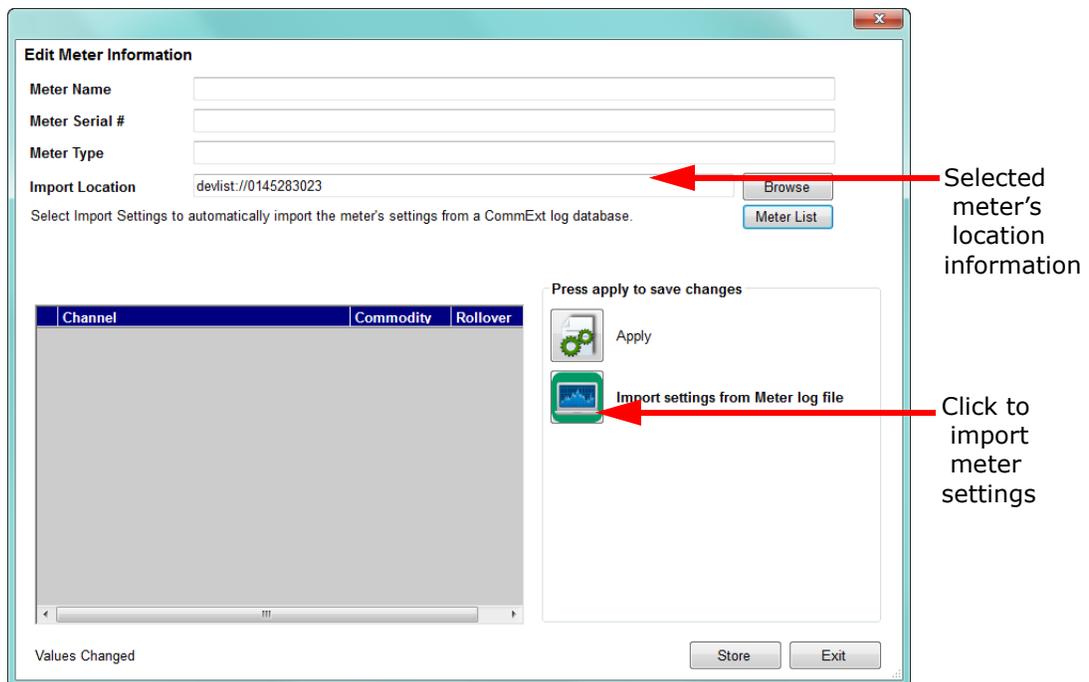
The Meter List lets you quickly and easily add meters and all of their associated data into the GE Energy Aggregator application.



NOTE

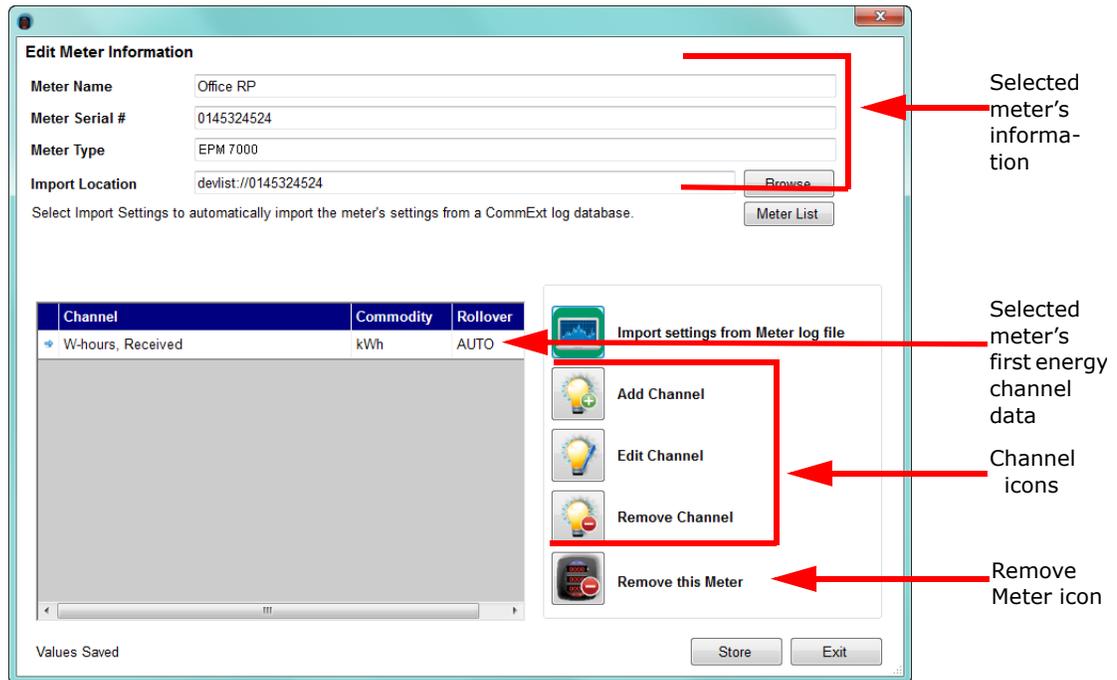
You can add a meter manually if you need to, though the preferred method is through the meter list, as described here. For instructions on manually adding a meter, see “Adding a Meter Manually” on page 5-50.

- The meters are listed in their assigned groups. Click on a meter and click the **Select** button to add it. The **Edit Meter Information** screen is re-displayed, with the selected meter's **Import Location**.

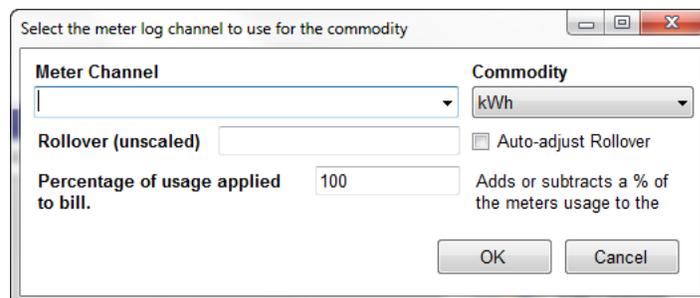


- Click the **Import Settings from Meter Log File** icon. You will see a window telling you that the settings have been imported. Click **OK** to close the window.

- Click the **Apply** icon. The screen will re-display showing the selected meter's information and additional icons.



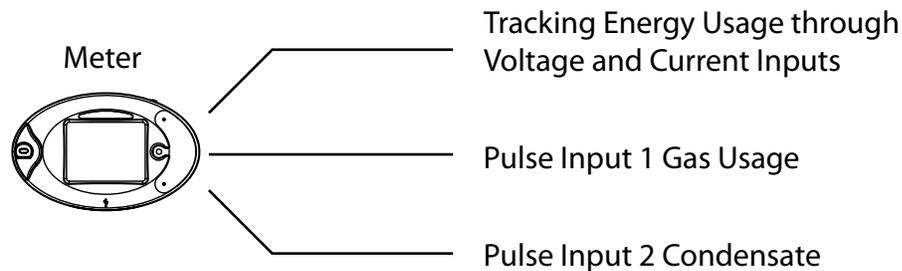
- After the meter settings are imported from the meter's log file and you click **Apply**, the first energy channel is selected and displayed in the Channel fields. A channel is a single type of data item from the meter's log database, e.g., **Watt-hours Received**. The channel will be linked to a commodity for use in generating bills; e.g., the **Watt-hours Received** channel linked to the kWh commodity. The **Channel** icons let you add channels, edit them, or remove them.
 - To add a channel, Click **Add Channel**.



- Select the channel from the pull-down menu. The channels you see are the data values that you set up for this log using the GE Communicator application. They are channels for Energy and/or pulse accumulations. See "Importing External Data" on page 5-54, for channel setting instructions for external databases.
- Select the commodity from the pull-down menu. Once the data has been imported, it will be tracked by the commodity.
 - You can select only one channel per commodity, per meter, e.g., Total Watt-hours for kWh.

- A meter can have multiple commodities. See the diagram below.

Figure 5-4: Example of Meter Measuring Multiple Commodities



16. **Auto-adjust Rollover** is the default selection on the screen. The unscaled rollover field will display the settings from the GE Communicator software for this channel, if you click on the **Auto-adjust Rollover** box to de-select it. You can edit the value in the unscaled rollover field.



Manually setting the rollover field is only applicable to older EPM 9450 models.

17. The **Percentage of Usage Applied to Bill** field lets you add or subtract a portion of the usage for this channel, for this meter, to the bill when it is generated, allowing for credits for certain meters. You might want to use this if you want to remove a meter from being billed for this usage. For example, if you have a main meter at a location, e.g., a meter attached to the building's utility feeder, and submeters in individual tenant units, you may want to bill for main meter usage, comprised of things like hallway and outside lighting, on a separate bill from the tenant billing.
- To do this you would put 100% for the usage field for the submeters and -100% for the usage field for the meter attached to the utility feeder.
18. When you have made your choices, click **OK**. The channel, commodity, and roll-over value are now shown in the **Channel/Commodity/Rollover** box in the **Edit Meter** Information screen.



- To edit a channel, click on it in the box and click the **Edit Channel** icon; to remove a Channel, click on it in the box and click the **Remove Channel** icon.
 - When changing the meter channel used for the commodity, if the new channel's type changes from accumulator (e.g., Quadrant 1+4 Wh) to interval accumulator (e.g., Interval Energy Quadrant 1+4 Wh), or vice versa, the GE Energy Aggregator application will automatically try to convert the data that has already been imported, in order to preserve it. This can help ensure continuity of data when you change the meter's log configuration.
 - When converting from Accumulator to Interval Accumulator, the interpolated interval values will be used as a basis for the new Interval Accumulator values to be imported.
 - When converting from Interval Accumulator to Accumulator, the interval values will be used as a basis for the new interpolated intervals. This allows interval data to be retrieved from before the available accumulator values.
19. If you want to add a channel for another commodity, follow the same procedure. When you are done selecting channels, click **Store** to save the settings.



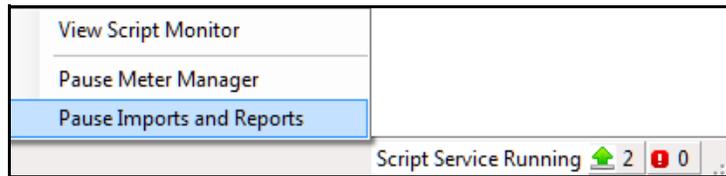
When selecting a database or meter to import data from, if the database contains logged Demand values, the GE Energy Aggregator application will automatically select the best Demand channel to be imported. If you wish to change which Demand value is used, select the Demand channel, click **Edit Channel**, and select a different channel. If you do not want to import the meter's demand channel, or wish to use the software computed demand, just remove the **Demand** channel.

- If you have a meter that has already been configured, and wish to add a demand channel, just select Add Channel, and select the Demand channel you wish to use.
- Once configured, the imported meter demand will be used for all Demand charges in the Bills.

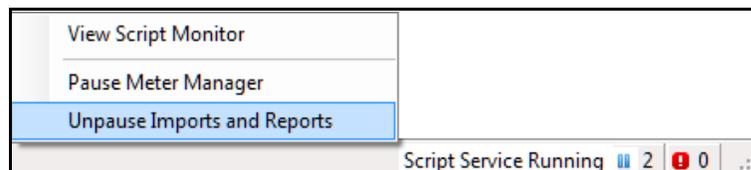


While editing the meters at a location, GE recommends that you pause automatic imports and report generation. When you are done editing the location, you can restart the imports and reports - the actions taken while paused will then be processed.

- To pause automatic imports and report generation, click on the **Script Service Running Message** at the bottom right of the Location screen and select **Pause Imports and Reports**.



- To restart automatic imports and report generation, click on the **Script Service Running Message** and select **Unpause Imports and Reports**.

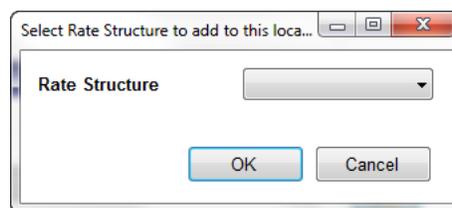


If you forget to unpause the imports and reports, the GE MeterManager service will automatically unpause them for you after an hour of inactivity.



This screen also gives you the option of removing the meter; to do so, click the **Remove This Meter** icon. **Removing the meter will delete all of the imported data for the meter.**

20. Click **Exit** to return to the Edit Location Information screen. Add a rate structure to the Location by clicking the **Add Rate Structure** icon. You will see the screen shown below.



21. Select the rate structure you want from the pull-down menu and click **OK** to close the screen.



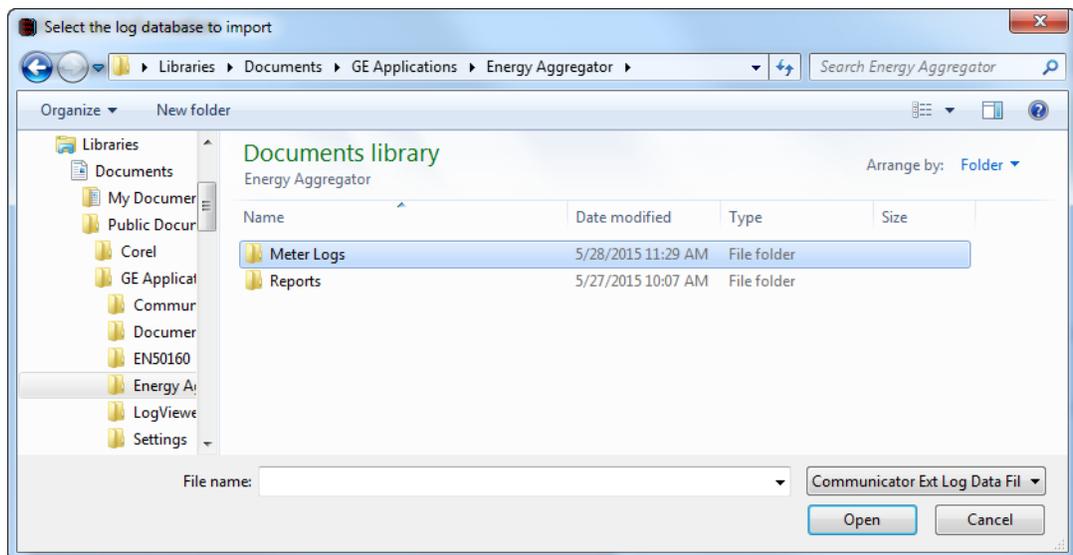
NOTE

You can also select **Create New** to add a new rate structure. Follow the instructions for adding a rate structure in Section 4.2.

5.4.1 Adding a Meter Manually

The usual and preferred method of adding meters to a location is through the meter list, as shown in the previous section. If you need to enter a meter manually, follow these instructions:

1. From the Edit Location Information screen, click the Add a Meter to This Location icon. The Edit Information screen opens. Enter the following:
 - **Meter Name:** enter a unique identifier for the meter. This name must be unique across all locations. It is used to identify the meter's billing data.
 - **Meter Serial #:** enter the meter's serial number.
 - **Meter Type:** enter the meter type.
2. Import Location is the place where the meter's billing log data is stored (e.g., C:\Users\Public\Documents\GE Applications\Communicator_EXT\Retrieved Logs). This log data file contains the raw values the GE Energy Aggregator application imports in order to generate its billing database, i.e., Energy usage or pulse accumulations. Refer to Figure 4.1 for a depiction of the data flow between applications; see Chapter 2 if you need to refresh your understanding of setting up the meters' historical logs for GE Energy Aggregator application use.
3. Click **Browse** to locate the meter's log database file. You will see a screen that lets you locate and select the log file. See the example screen shown below.

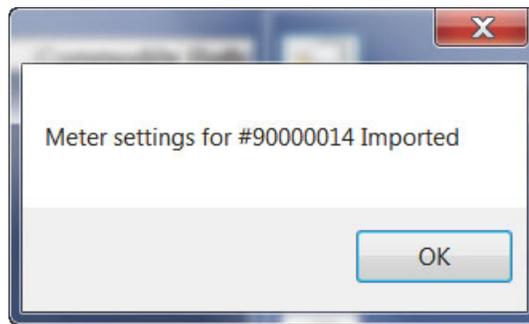


NOTE

- The log database file comes from either the GE Communicator application (*.db or *.dml: the database created when logs are retrieved using the GE Communicator application).



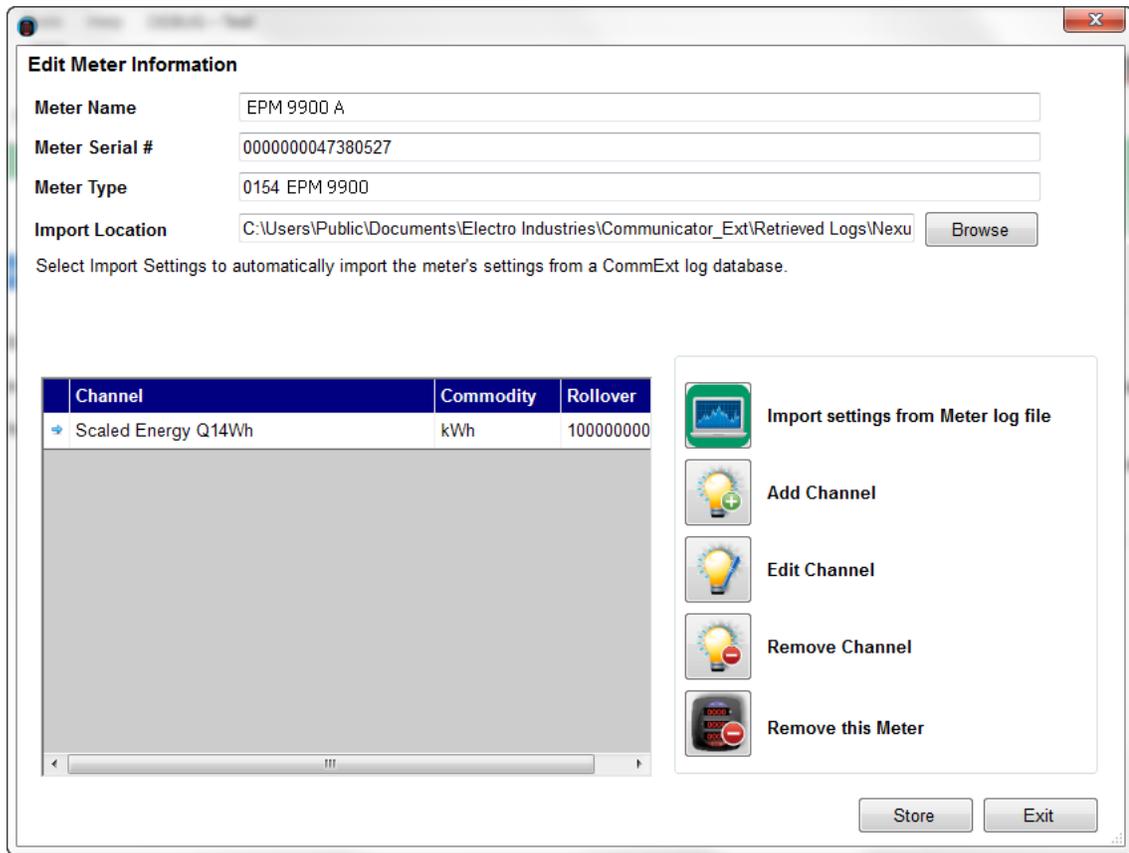
- See *View/Copy/Export Meter Data* on page 7–1 for file importing suggestions.
 - Be careful when selecting the location to import from. Importing is done by the GE Energy Aggregator Settings Editor software, and if you select a location that is not accessible (or invalid), you may not be able to import the data.
 - If you change the import location file, it will wipe out the selected channels. You will have to select the channels you want to import, again.
4. When you find the file you want to use, click **Open**. The screen closes and you see the Edit Meter Information screen. The log file's path is now displayed on the screen next to **Import Location**.
 5. Once you've selected the file to import from, the application will verify that it contains log items that can be linked to commodities. This includes Energy, e.g., Total Watt-hours, and pulse accumulations, e.g., a Digital Input channel.
 6. If you are using a GE Communicator log database, click the **Import Settings** from Meter Log File icon. You will see the message window shown below. It tells you that the meter settings were imported from the meter with the serial number listed in the screen. Click **OK** to close the window.



The Import Settings function will only fill in a meter name that has not already been entered. If you have already filled in the meter name, it will leave that as is.

TIP: GE highly recommends importing all the meter configuration data. This automated tool makes the meter configuration task much simpler.

- Click the **Apply** icon to create the meter. The Edit Meter information screen re-displays with additional options - now you can choose the channels to import. See the example screen shown below.



- Continue from step 13 in "Set Up a Location and Add Meters to It" on page 5-40.

5.4.2 Meter at Location Example

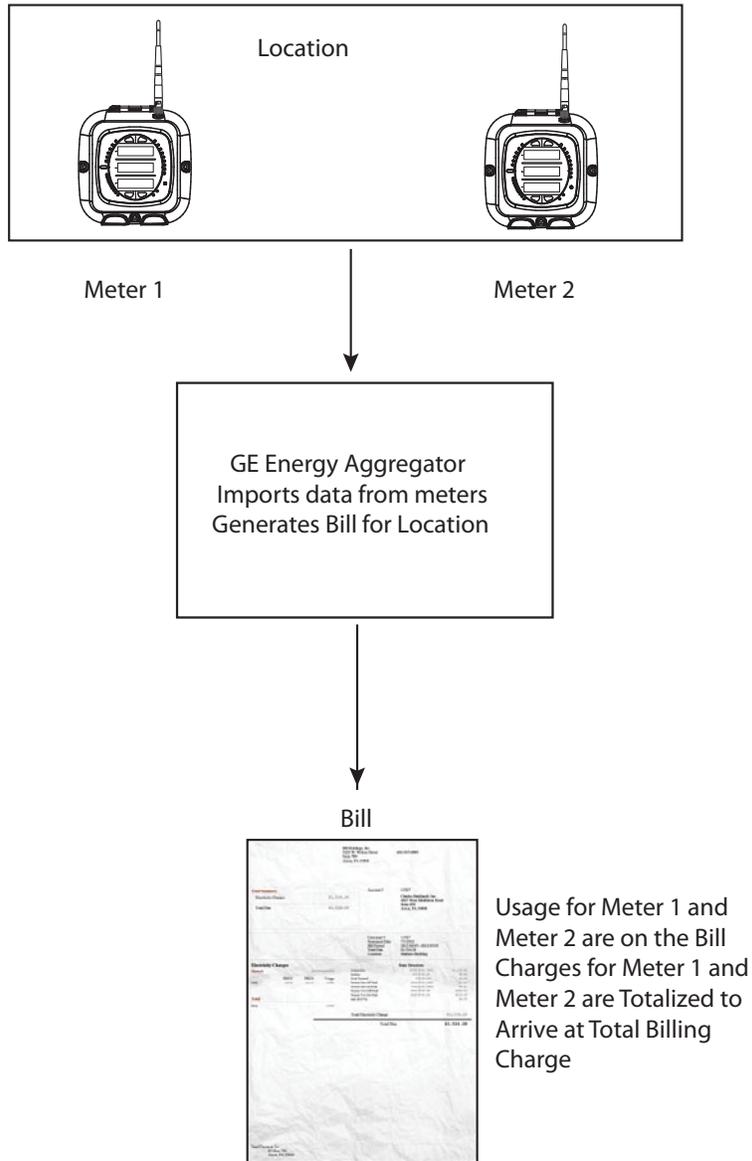
If you have two meters at a location, for example, each metering a utility feeder, you would set up both meters for the location, following the instructions in this section. The software will import all of the usage data for both meters and when the bill is generated the usage for both meters will be totalized to arrive at the billed dollar amount. See the diagram below.



Meter imports are a background process managed by the server, and are automatically performed when settings change or when new log data is downloaded from the meter - you do not need to manually import any data. The current status of the currently running imports can be viewed from the View Imports screen - see "The Service Status Bar" on

page 8-4.

Figure 5-5: Totalizing Meters



5.4.3 Importing External Data

If you are setting up the GE Energy Aggregator application for use with external data (as opposed to the GE Communicator application log data), there are some unique considerations. The database file must have four fields:

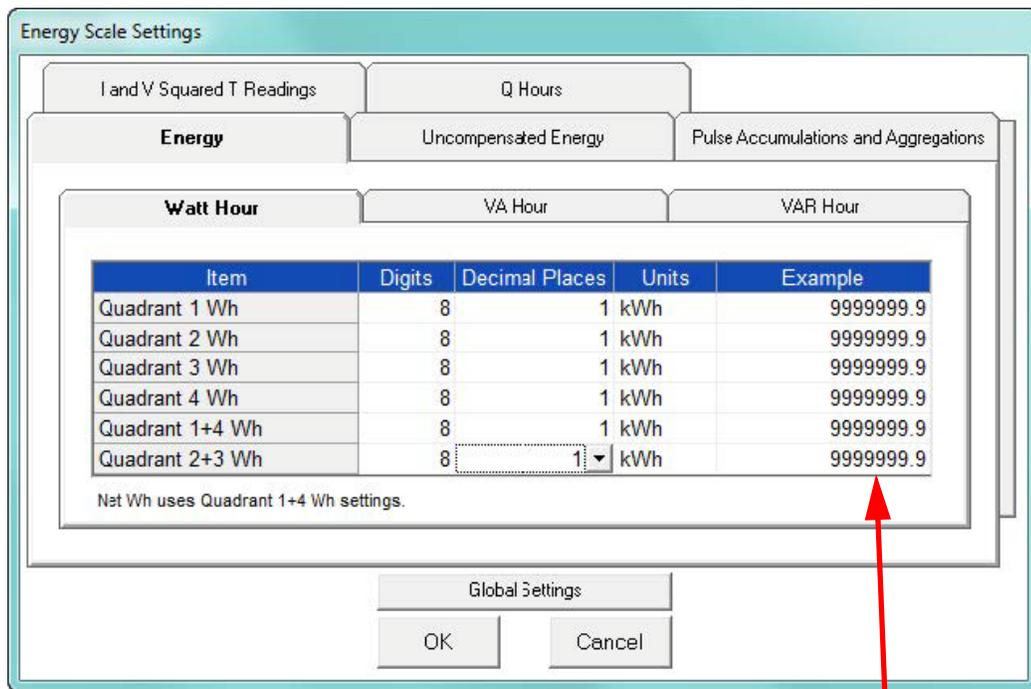
- **DATE:** the date of the record formatted as yyyy/mm/dd
- **TIME:** the time of day of the record formatted as hh:mm:ss
- **KWHR:** the Energy usage in kilo-watt-hours
- **CONDENSATE:** this field is a pulse accumulator channel, intended for condensate (steam) pulses. You can assign this channel to other commodities, such as gas or water, in the GE Energy Aggregator application - see Section 4.4 for instructions. This field is assumed to be in kilo scale.

These are the only fields you can use. If you need to use more fields, split the data into multiple files and import as multiple meters.

- The optimal interval for the data is 15 minutes, time-stamped on the minute.
- The database file must be a dBase IV format database. It can be opened in Excel, but should not be saved in Excel as this can cause database corruption which will prevent the file from working with the GE Energy Aggregator application.
- The file name should be eight characters with an extension of three characters, e.g., EPM9900_2.dbf.



- The GE Energy Aggregator application rollover value should be the same as the rollover value in the meter’s device profile, set in the GE Communicator application (in the meter’s **Device Profile > Revenue and Energy Settings > Energy Scaling**).



Rollover Value

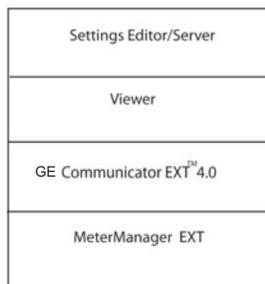
GE Energy Aggregator

Chapter 6: GE Energy Aggregator Dashboard Viewer

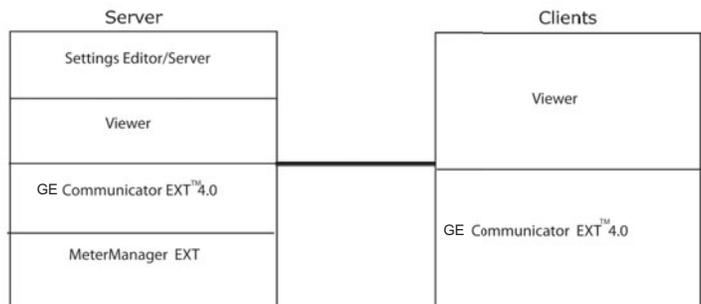
The GE Energy Aggregator application has two main components. The first is a settings editor/server that provides all of the calculations and stores the data in the usage database. The second is a viewer application. The viewer component allows the user to view and analyze the stored data. Both components can be installed on one machine; however, the editor/server can **only** be installed on **one** machine. The viewer is a client component and can be installed on multiple machines.

Figure 6-1: Settings Editor/Server and Viewer Installed on One PC

Single Computer Mode (One Computer Only, or Remote Desktop Application)



Multi-Computer Mode



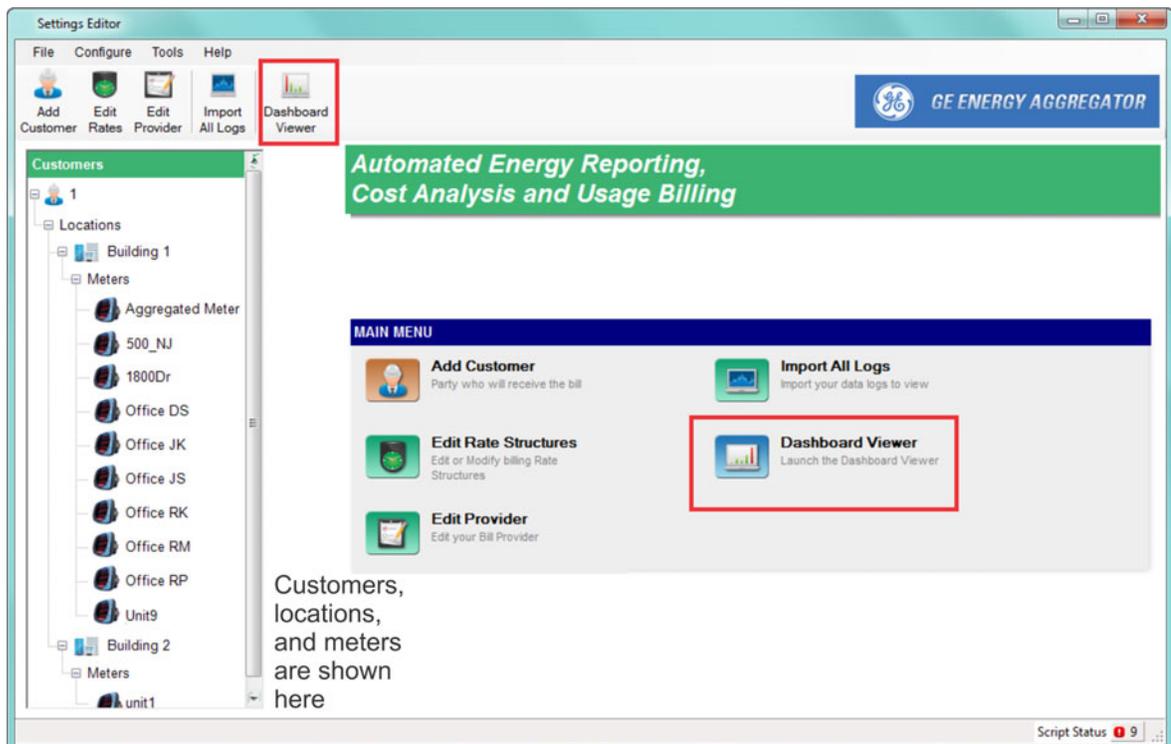
You used the GE Energy Aggregator Settings Editor/Server to set up customers, locations for customers, and meters at locations, as well as commodities and rate structures that will be applied to usage. The GE MeterManager application automatically downloads the logs from the selected meters and the GE Energy Aggregator application automatically imports the commodity usage data from the logs. The GE Energy Aggregator application generates the bills and usage reports based on the billing period and report criteria you have set up using the GE Energy Aggregator Settings Editor.

The GE Energy Aggregator Dashboard Viewer is the part of the GE Energy Aggregator application that lets you see, print, and export billing and usage information for the customers, locations, and meters.

As mentioned in Chapter 5, locations with multiple meters generate a virtual meter to store aggregated meter data. The Aggregate Meter's data can also be accessed from the GE Energy Aggregator Dashboard Viewer.

6.1 Accessing the GE Energy Aggregator Dashboard Viewer

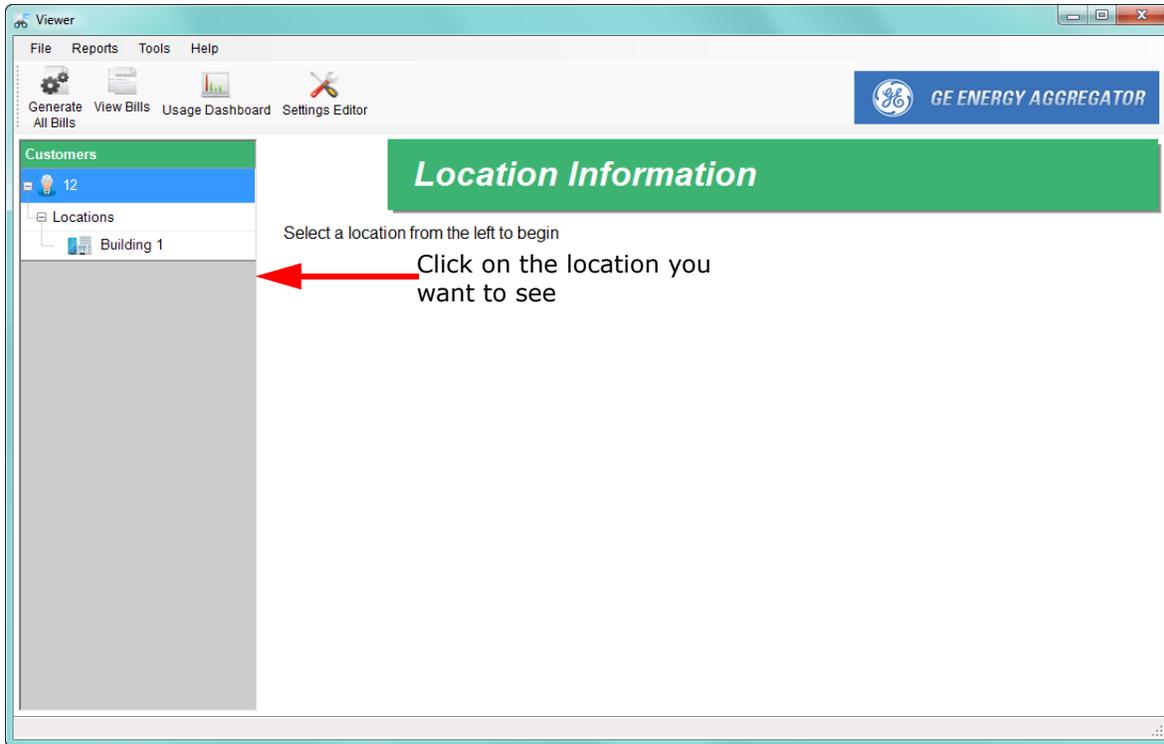
1. Click either the **Dashboard Viewer** icon from the top of the GE Energy Aggregator Settings Editor screen, or the Dashboard Viewer icon from the GE Energy Aggregator Settings Editor main screen. Dashboard Viewer is the part of the GE Energy Aggregator application that lets you see, print, and export billing and usage information for the customers, locations, and meters



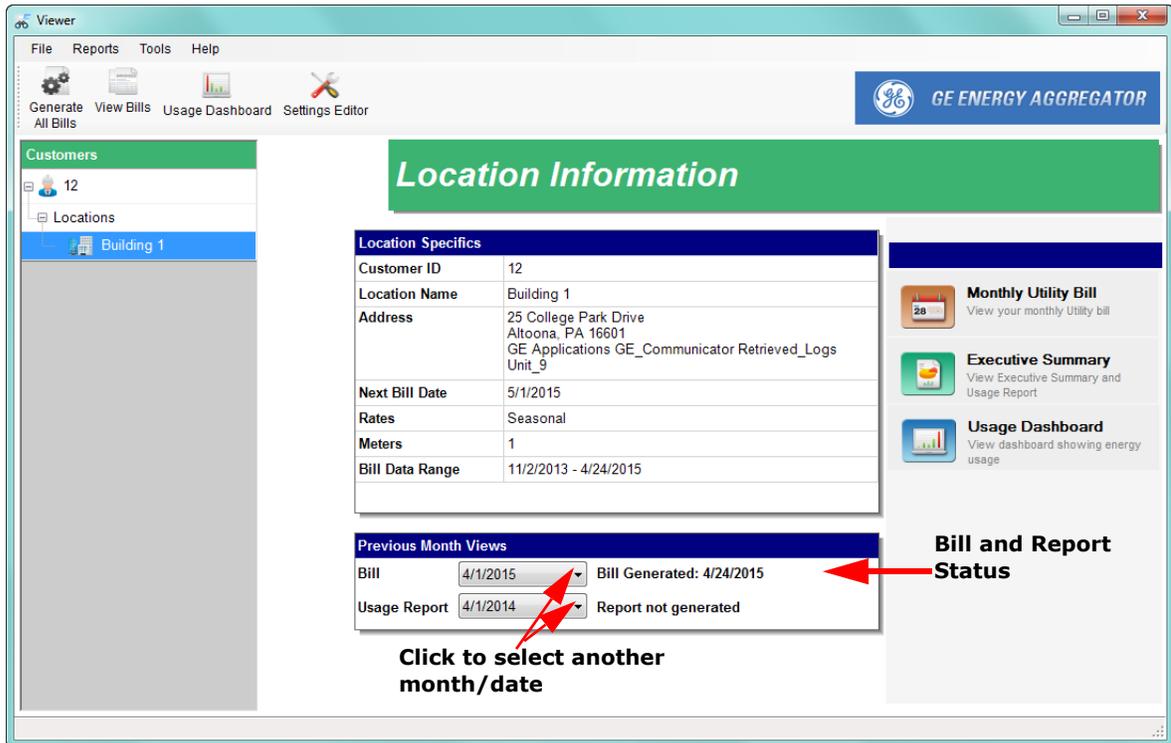
NOTE

You can click **Tools > Refresh** to return to the main screen display from another screen, e.g., the **Location** screen.

2. The GE Energy Aggregator Dashboard Viewer application starts and you see the main GE Energy Aggregator Viewer screen. Choose a location from the tree on the left side of the screen. The location is the physical place where the meters are located.



- After you click on a location, information about the location is shown in the middle of the screen.



- You can select a different month/date to see the **Bill** and **Usage Report** status for that month.

The icons on the right of the screen let you:

- Monthly Utility Bill - view the bill for the month. If it hasn't been generated yet, it will be generated and then displayed. See "Generating and Viewing Customer Bills" on page 6-21.
- Executive Summary - generate the Executive Summary Usage report based on your selections. See "Executive Summary Usage Report" on page 6-13.
- Usage Dashboard - display the Usage Dashboard - see "Usage Dashboard" on page 6-6.

The icons at the top of the screen let you:

- Generate All Bills - generate customer bills. See "Generating and Viewing Customer Bills" on page 6-21.
- View Bills - see already generated bills. See "Generating and Viewing Customer Bills" on page 6-21.
- Usage Dashboard- display the Usage Dashboard - see "Usage Dashboard" on page 6-6.
- Settings Editor - open the GE Energy Aggregator Settings Editor application. See Chapter 4.

The menu items at the top of the screen let you:

- File - select to connect to the database or exit the GE Energy Aggregator Dashboard Viewer.
- Reports - view or generate bills and usage reports, per selected criteria. See “Generating and Viewing Usage Reports” on page 6-13, and “Generate Custom Reports” on page 6-18.
- Tools - view bill data, view bill errors for locations, export meter data, perform advanced tasks (see chapters 7 and 8).
- Help - check for updates, see User Manual, see information about the application version, read the User License.

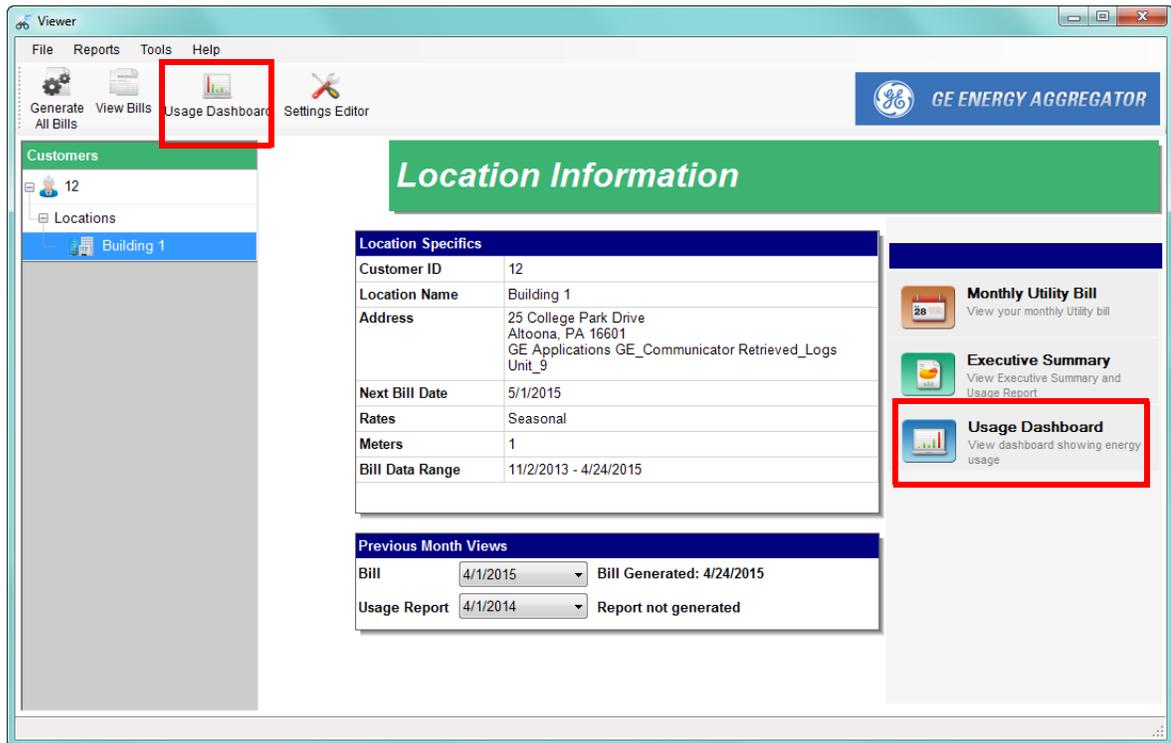
6.2 Usage Dashboard

One of the important features of the GE Energy Aggregator application is the Usage Dashboard. It allows you to easily view Energy and other commodity usage data in a number of formats:

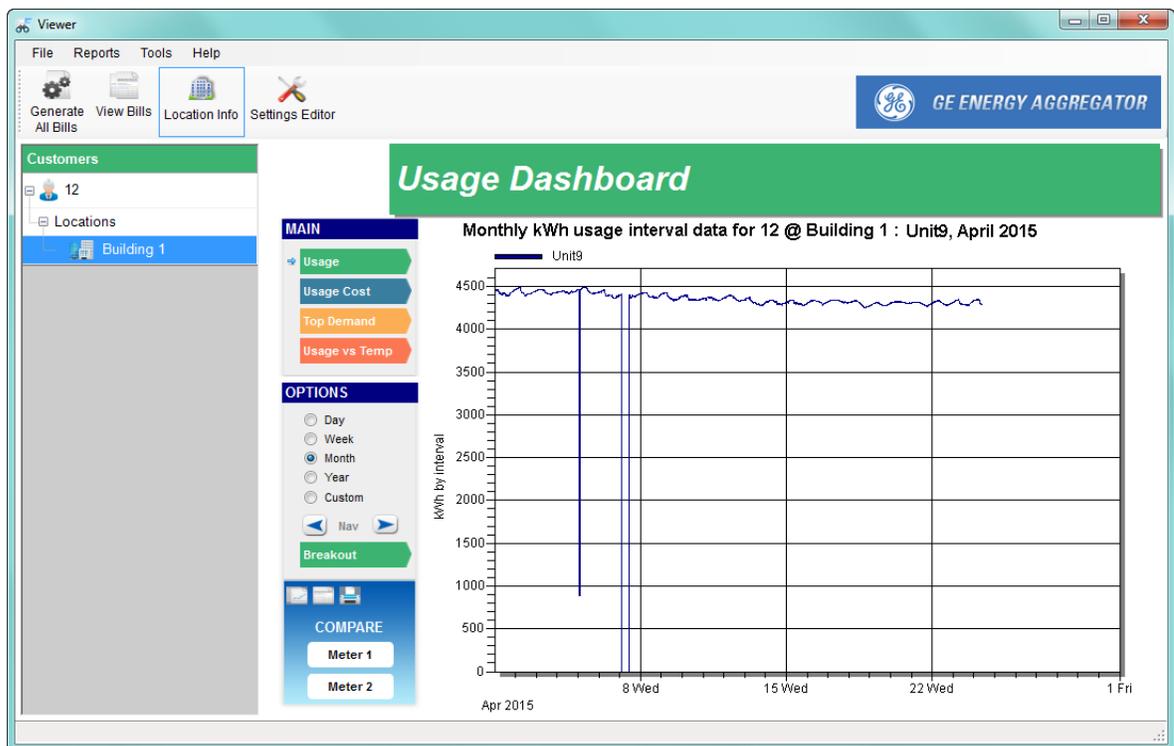
- View usage by day, week, month, year, or by a customized date range
- Compare usage between meters/locations
- Compare usage against weather data
- View costs
- View top Demand by day, week, month, year, or by a customized date range
- View meter logs (for meters set up using the GE MeterManager Meter List)
- Connect to the meter through GE Communicator software (for meters set up using the GE MeterManager Meter List)
- Copy, export, or print graph image

The Usage Dashboard provides a configurable, top-level view of usage, to enable a precise understanding of energy consumption patterns. These patterns include trends, and demand on the power system.

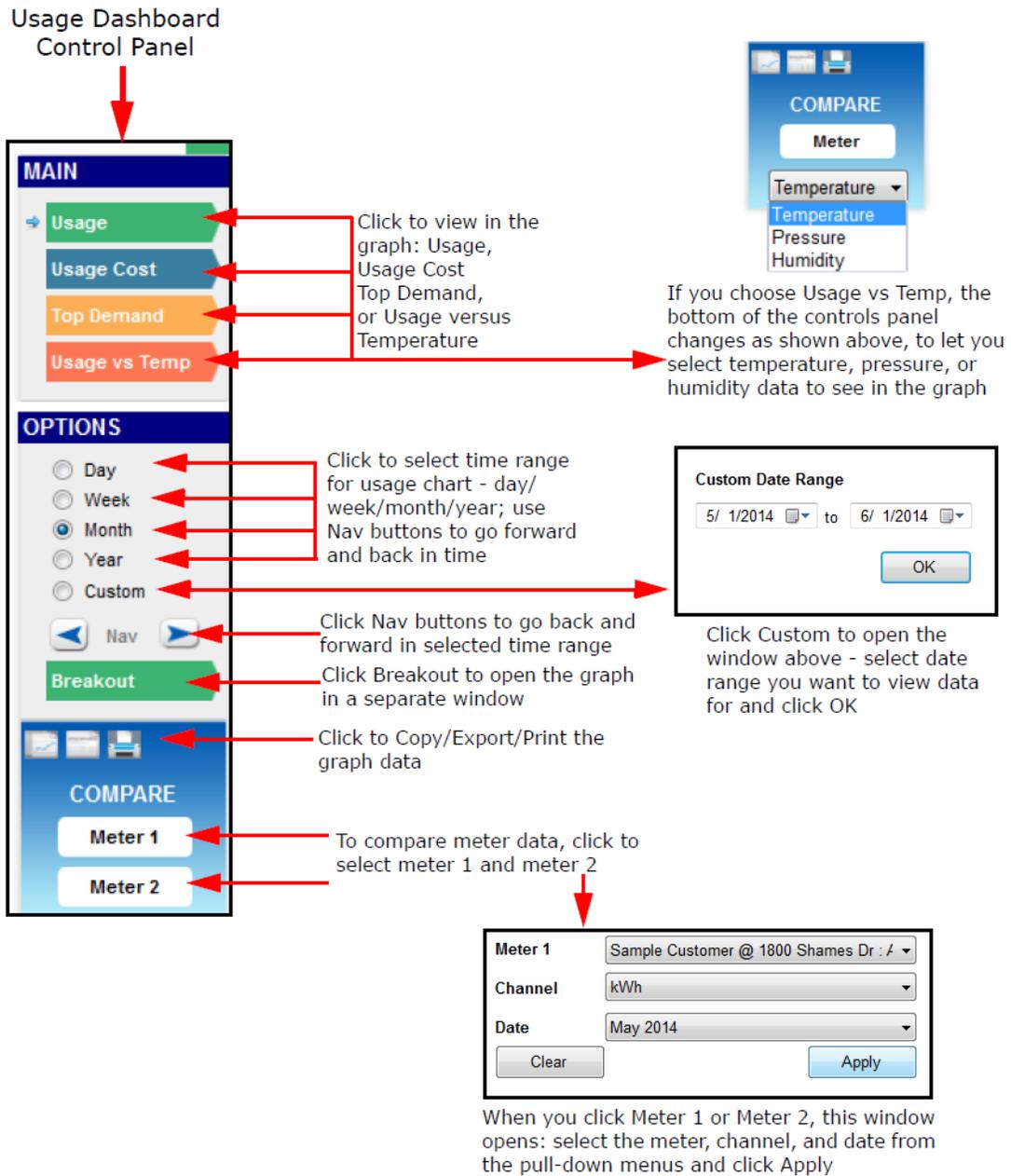
- To open the Usage Dashboard, click on the **Dashboard Viewer** icon either at the top or the middle right of the GE Energy Aggregator Dashboard Viewer screen.



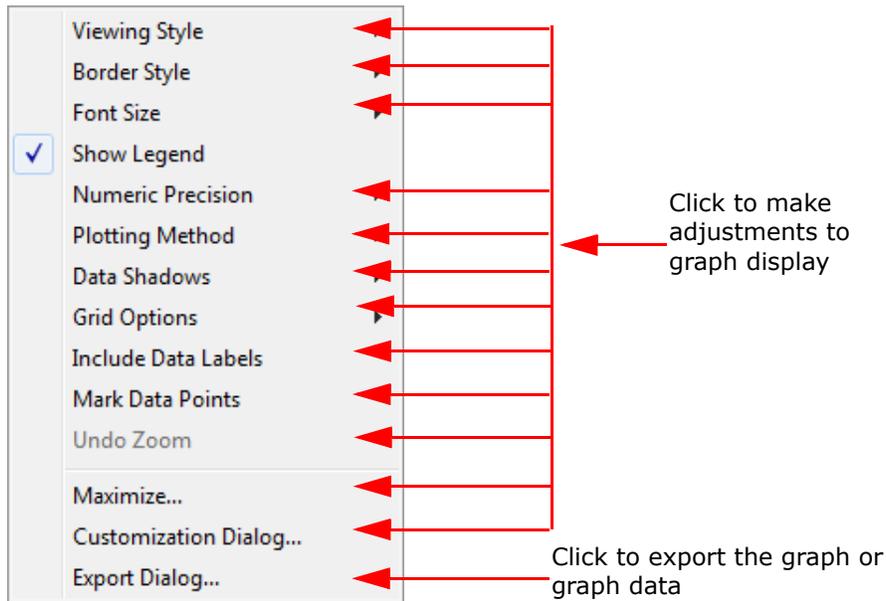
- The GE Energy Aggregator Dashboard Viewer opens.



The monthly usage is shown for the current month. There are controls to the left of the Usage Dashboard. See the diagram below for an explanation of the controls.



You can also right-click in a graph to open a sub-menu.



The following pages show examples of different graph selections.

Figure 6-2: Two Meter Usage Comparison for One Month

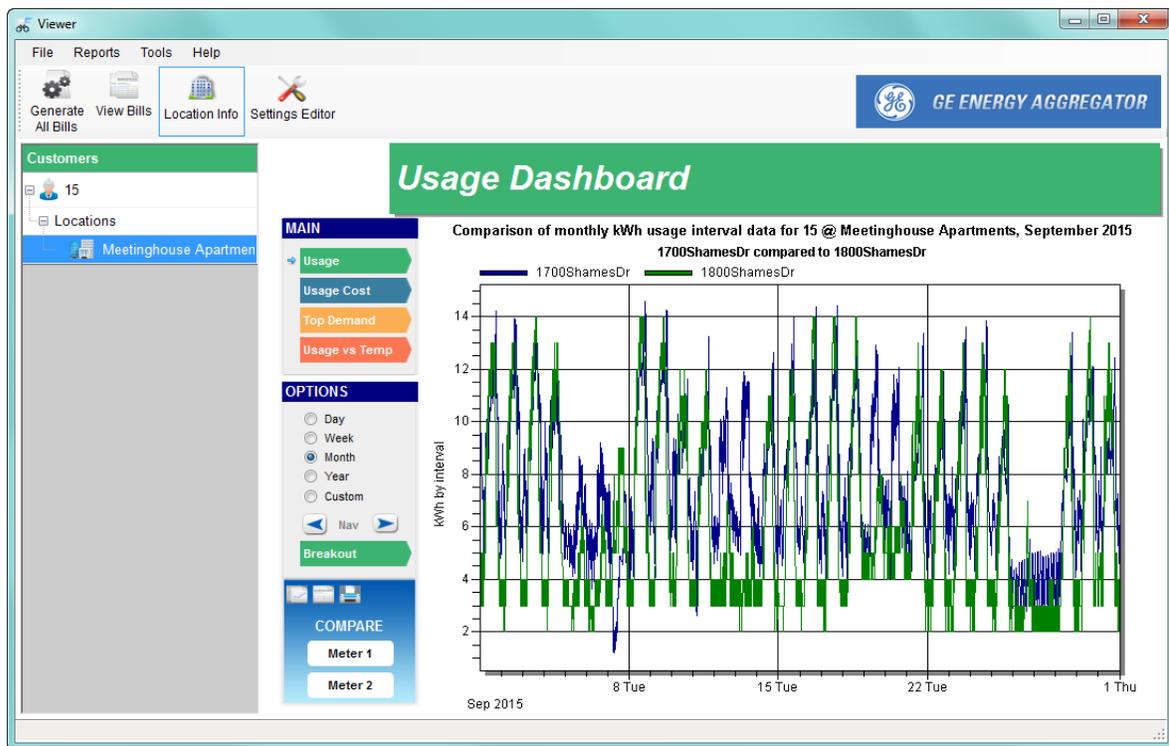


Figure 6-3: Two Meter Usage Cost Comparison for One Week

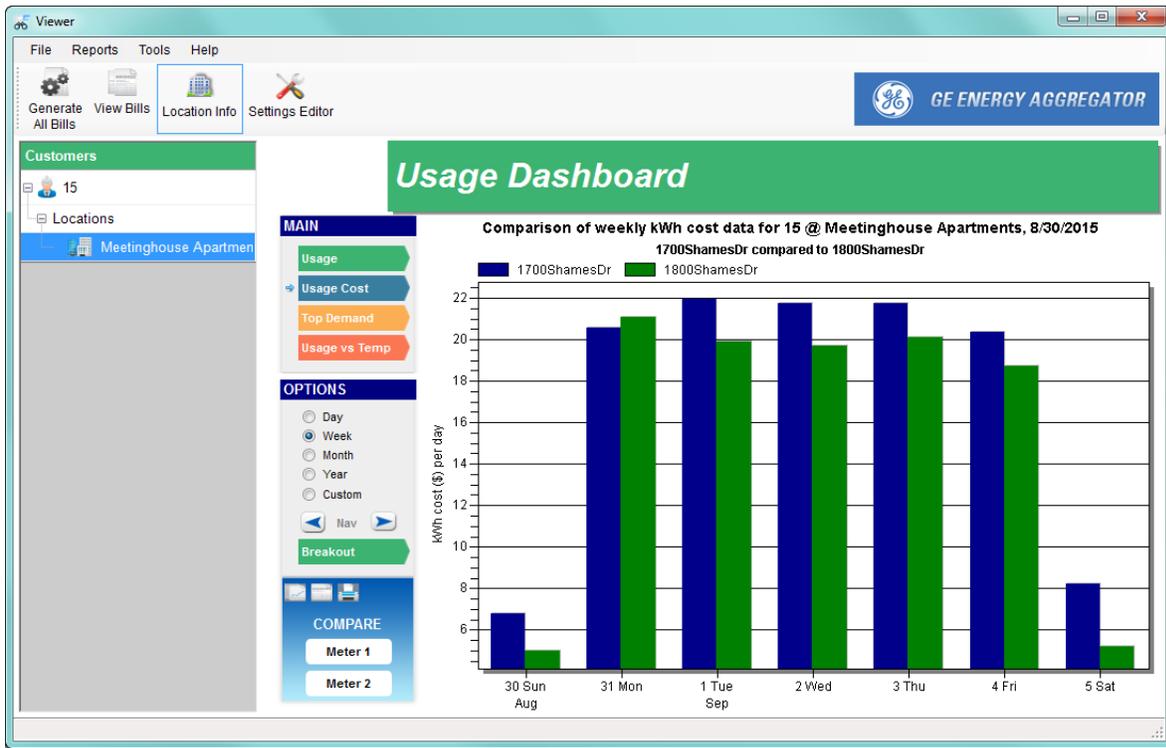


Figure 6-4: Breakout of Top Demand Comparison for Two Meters for the Year

Break Out

Comparison of yearly kWh top demand for 12 @ Building 1 :
Office_JK compared to Office_RM

Office_JK		Office_RM	
Date	kW (demand)	Date	kW (demand)
5/7/2014 10:00 AM	0.11	4/11/2014 7:45 AM	0.32
5/7/2014 9:45 AM	0.11	4/24/2014 7:15 AM	0.30
5/7/2014 9:30 AM	0.10	4/28/2014 7:30 AM	0.19
5/7/2014 9:15 AM	0.10	4/22/2014 11:15 AM	0.18
5/7/2014 10:15 AM	0.09	4/25/2014 10:45 AM	0.18
5/7/2014 10:30 AM	0.07	4/23/2014 3:45 PM	0.18
5/7/2014 2:45 PM	0.06	4/22/2014 11:30 AM	0.18
5/8/2014 5:45 AM	0.06	4/25/2014 11:00 AM	0.18
5/8/2014 6:30 AM	0.06	4/23/2014 4:00 PM	0.18
5/8/2014 8:15 AM	0.06	4/22/2014 11:00 AM	0.18
5/8/2014 7:00 AM	0.06	4/29/2014 11:00 AM	0.18
5/7/2014 3:15 PM	0.06	4/22/2014 12:15 PM	0.18
5/8/2014 8:00 AM	0.06	4/29/2014 3:15 PM	0.18

Figure 6-5: Usage Versus Weather - Temperature for the Month

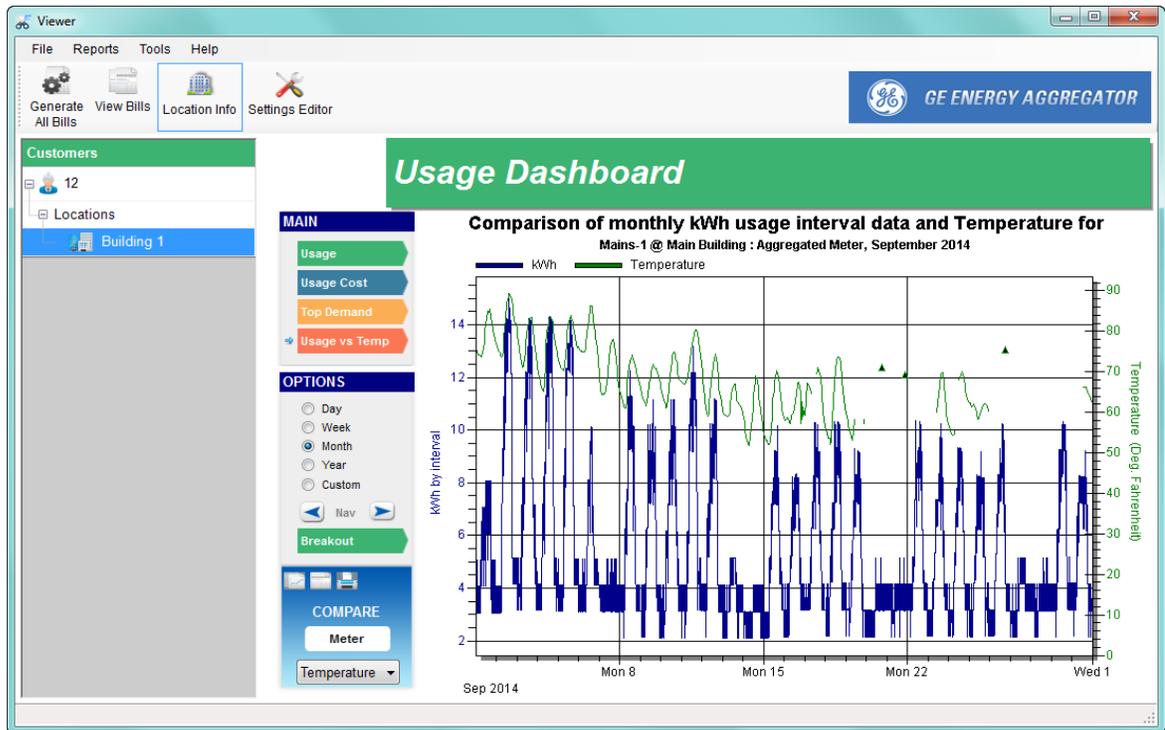


Figure 6-6: Usage Versus Weather - Pressure - for One Week

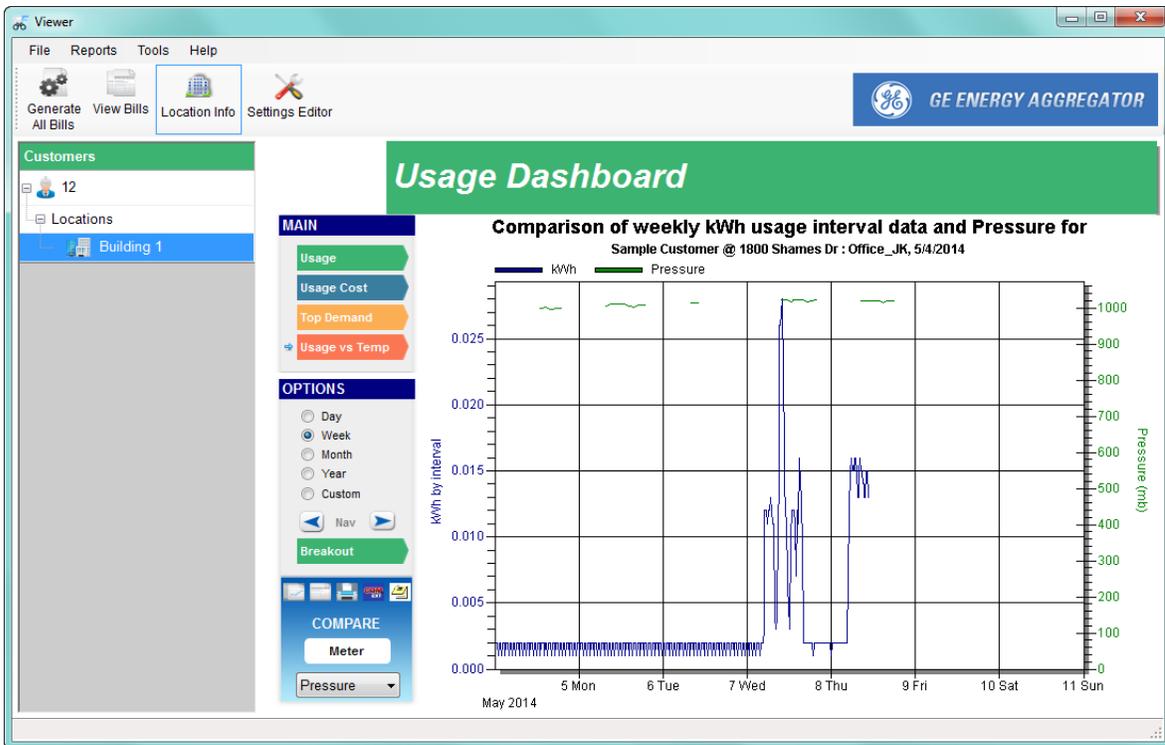
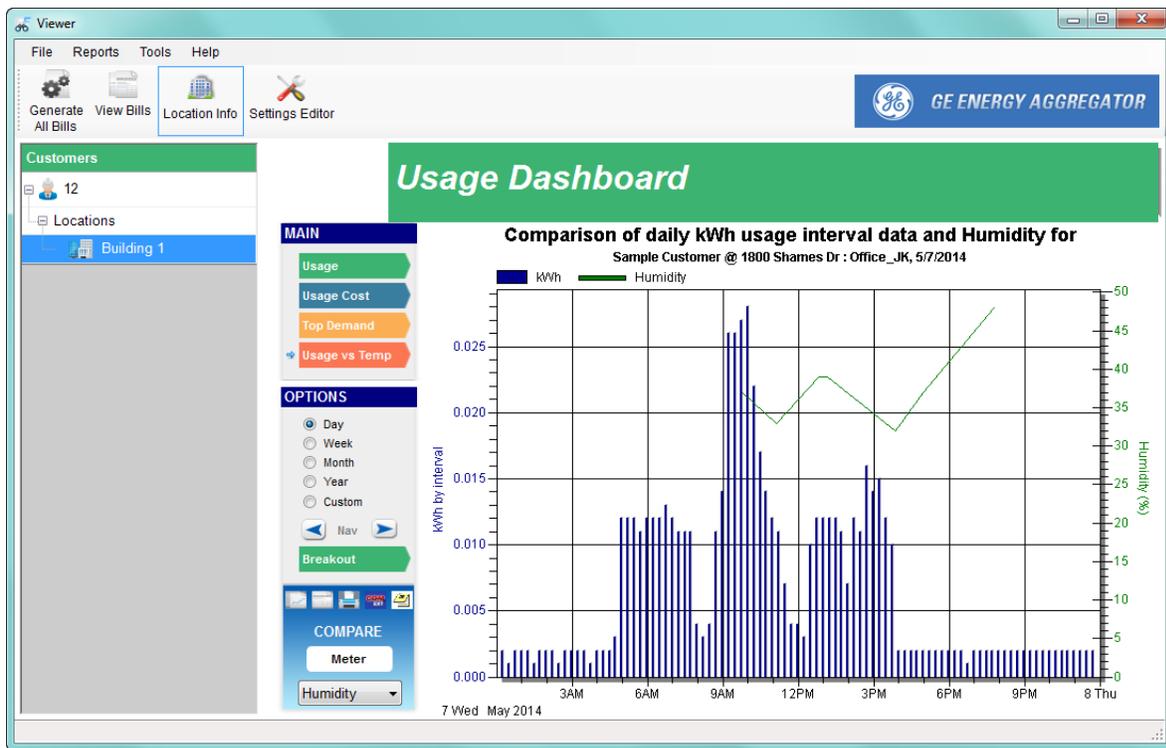


Figure 6-7: Usage Versus Weather - Humidity - for One Day



3. To exit the usage dashboard, click the **Location Info** icon at the top of the screen.

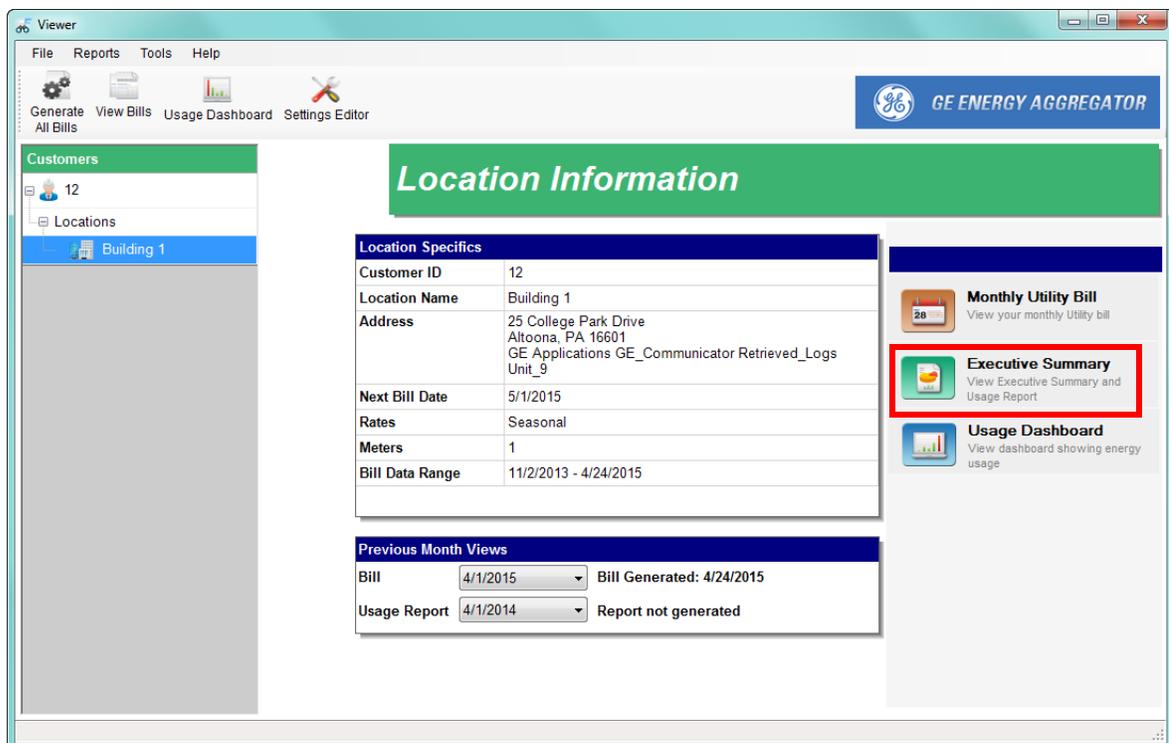
6.3 Generating and Viewing Usage Reports

The following sections explain GE Energy Aggregator application's usage report options.

6.3.1 Executive Summary Usage Report

The Executive Summary Usage Report is a customized report containing the location and data you specify, or, for all customer locations, containing extensive, detailed usage information. It is designed to provide a complete picture of energy consumption, including analytics on usage patterns and contributing factors, such as weather.

1. From the GE Energy Aggregator Dashboard Viewer's Location Information screen, click the **Executive Summary** icon on the right side of the screen.



2. You will see the window shown on the next page. Use it to select the data you want to see in your report. This feature lets you generate a customized report with only the data you want.

For example, you can choose to view the highest usage per meter, or the total usage per meter during the Peak Day.

Executive Summary Usage Report

Customer Susan Richards
Location Meetinghouse Apartments
Date August 2015

Report Type

Channel kWh

Generate for all customer locations

Report Options

Display Demand

Reports to include

- Report Overview
- Monthly Usage Summary
- Highest Usage Meter Comparison
- Usage At a Glance
- Meter - Total Usage during Month
- Meter - Total Usage during Peak Week
- Meter - Total Usage during Peak Day
- Meter - Average Hourly and Daily Usage

Generate

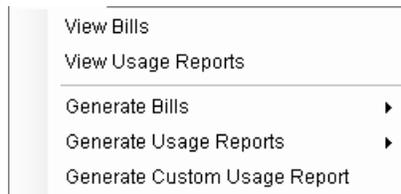


Usage reports can be very large. Because of this, executive summary usage reports cannot be generated for customers that have more than 200 meters (across all their locations). In addition, executive summary usage reports cannot be generated for any location with more than 100 meters.

3. Select the channel from the pull-down menu.
4. Note that the location you are currently viewing is displayed at the top of the screen. That is the only location whose data will be shown unless you select **Generate** for all customer locations by clicking in its checkbox.
5. If you want to see demand in your report, select **Display Demand** by clicking in its checkbox.
6. Click the checkboxes of the data you want included in the report. By default, all of the data is selected. Click on a box to uncheck it if you don't want that data in your report.
7. Click **Generate**. You will see a message while the report is being generated and then it will display on the screen. A sample Executive Summary Usage Report follows.

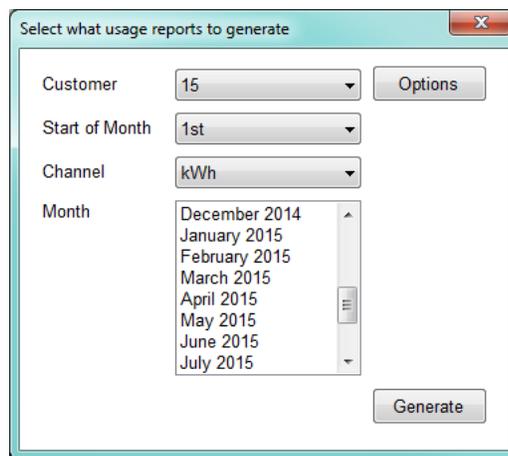
6.3.2 Generate Usage Reports

Click **Reports** in the GE Energy Aggregator Dashboard Viewer main screen's Menu bar. You will see the submenu shown below.



There are two Report options - **Generate Usage Reports** and **View Usage Reports**.

1. Click **Reports > Generate Usage Reports > Generate Customer Report**. You will see the screen shown below.

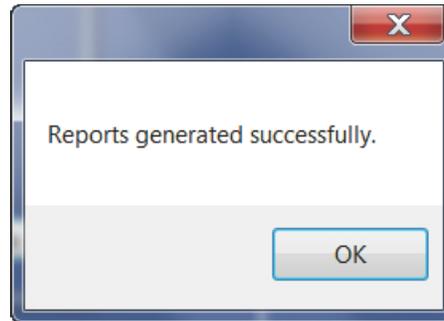


2. Select the customer, start date for the month, and channel. The **Month** box fills with the available months for the customer (the months which contain usage data).
3. Click each of the month(s) you want to create the usage report for.

4. Click **Options**. You will see the screen shown below.

5. Configure the following settings:
- The default path is displayed in the **Output Path** field. Click the **Browse** button if you want to choose another output path for the file. This is where the report will be saved.
 - The **Use Default Report Name** checkbox is already selected. The default report name is the customer number, commodity, and date of the usage, e.g., 11567_kWh_2013-03 for a report of kWh usage data for March 2013 for customer number 11567. If you want to use a different name for the usage report, un-check the box and enter a name in the blank field next to it.
 - **File format:** your format choices are PDF (Adobe PDF document), RTF (rich text format), or HTML (for viewing over the web).
 - **Report Commodity:** select the commodity you want to use from the pull-down menu. Usage reports are only generated for a single commodity at a time.
 - Click **Single Page Summary** if you want to have the month, week, and day usages on the same page.
 - If you select **Single Page Summary**, you can also select **Overlay Interval Data**. Click this option if you want to have trend data or Demand data (if you select the display Demand option) on the same graph as the usage bars.
 - You can select to colorize either TOU or periods.
 - **Display Demand:** labels the Interval usage report as Demand.

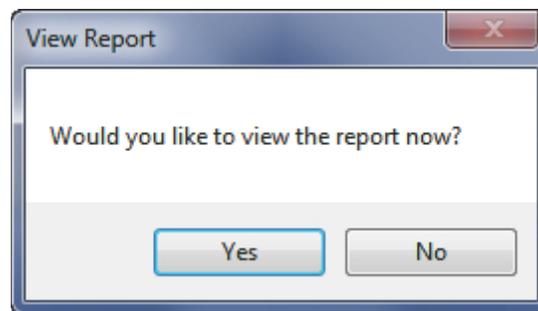
- Click **OK**. The screen closes and you see the previous screen. Click **Generate** to process the report. You see a progress message while the report is being generated. When the process is complete, you see the following message window.



- Click the **OK** button to close the message window. Another window opens asking if you want to view your report. See the next section.

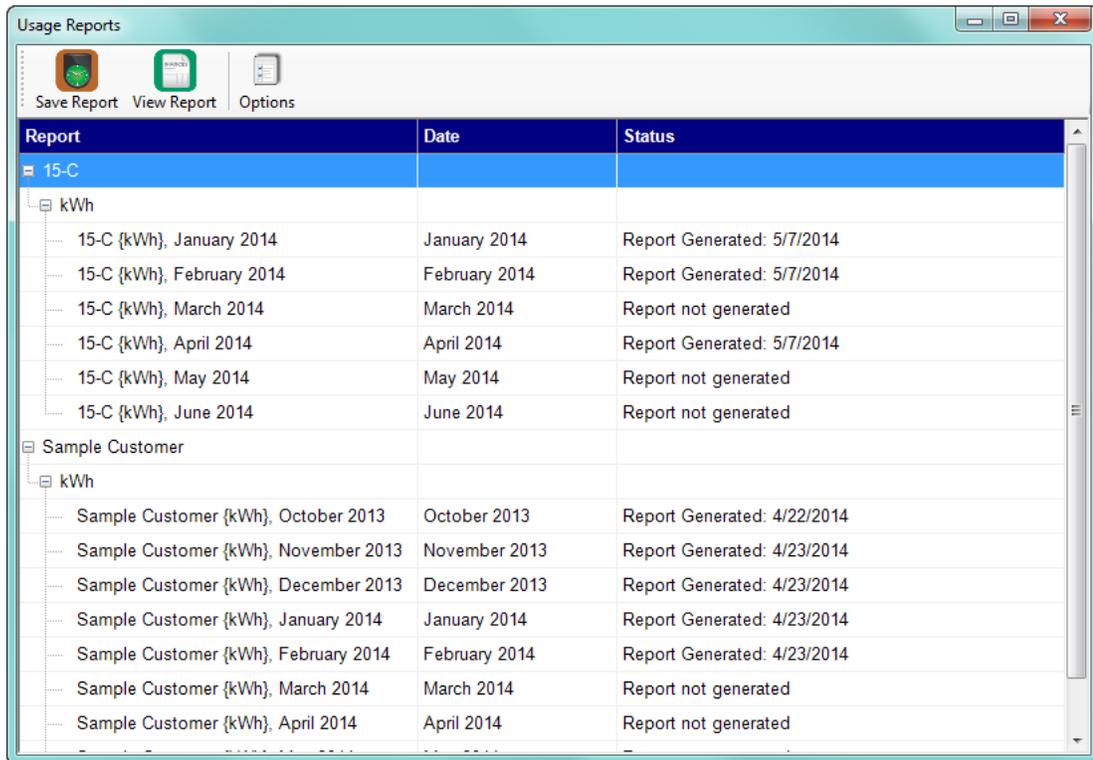
6.3.2.1 View Usage Reports

When you generate a Usage report you have the option to view it right away.



Click **Yes** to open the report. See the sample report in Appendix A.

- To view Usage reports at any time, click **Reports > View Usage Reports**. See the example screen shown below.



The screenshot shows a window titled "Usage Reports" with a toolbar containing "Save Report", "View Report", and "Options" icons. Below the toolbar is a table with three columns: "Report", "Date", and "Status". The table is organized into two main sections: "15-C" and "Sample Customer". Each section has a "kWh" sub-section. The "15-C" section lists reports for January through June 2014. The "Sample Customer" section lists reports for October 2013 through April 2014. The "Status" column indicates whether a report was generated and, if so, the date it was generated.

Report	Date	Status
15-C		
kWh		
15-C {kWh}, January 2014	January 2014	Report Generated: 5/7/2014
15-C {kWh}, February 2014	February 2014	Report Generated: 5/7/2014
15-C {kWh}, March 2014	March 2014	Report not generated
15-C {kWh}, April 2014	April 2014	Report Generated: 5/7/2014
15-C {kWh}, May 2014	May 2014	Report not generated
15-C {kWh}, June 2014	June 2014	Report not generated
Sample Customer		
kWh		
Sample Customer {kWh}, October 2013	October 2013	Report Generated: 4/22/2014
Sample Customer {kWh}, November 2013	November 2013	Report Generated: 4/23/2014
Sample Customer {kWh}, December 2013	December 2013	Report Generated: 4/23/2014
Sample Customer {kWh}, January 2014	January 2014	Report Generated: 4/23/2014
Sample Customer {kWh}, February 2014	February 2014	Report Generated: 4/23/2014
Sample Customer {kWh}, March 2014	March 2014	Report not generated
Sample Customer {kWh}, April 2014	April 2014	Report not generated

- This screen lets you view all of the months with usage data for customer locations. (Click on the + signs next to customer, location, and commodity to see the list of months.) Double-click on a month to view its usage report (or click on the month and click the **View Report** icon). See the sample report in Appendix A.

If the report hasn't been generated yet for the month, it is generated when you select it.

- You can also:
 - Click the **Options** icon to change output options before you generate another usage report, e.g., if you want to use a different format for the report. You will see the Output Options screen shown in "Generate Usage Reports" on page 6-15, step 4.
 - Click the **Save Report** icon to open a window that lets you choose a filename and a save location for a copy of the report.

6.3.3 Generate Custom Reports

As mentioned in "Set Up a Provider" on page 5-4, you can choose to manually generate a Custom report. To do so:

1. Select Reports>Generate Custom Usage Report from the Dashboard Viewer's Menu bar.

The screenshot shows a dialog box titled "Custom Usage Report Options". It contains the following fields and controls:

- Template:** A dropdown menu with "Special customers" selected.
- Override Template Settings:** An unchecked checkbox.
- Customer Id:** An empty dropdown menu.
- Location Id:** An empty dropdown menu.
- Period:** A dropdown menu with "2015/11 - 2015/12" selected. To its right is a blue "Refresh" button.
- Custom Start Date:** An unchecked checkbox followed by a date field containing "2015/11/28" and a calendar icon.
- Override Date Range:** An unchecked checkbox followed by a date field containing "2015/12/28" and a calendar icon.
- Generate:** A button located to the right of the date fields.

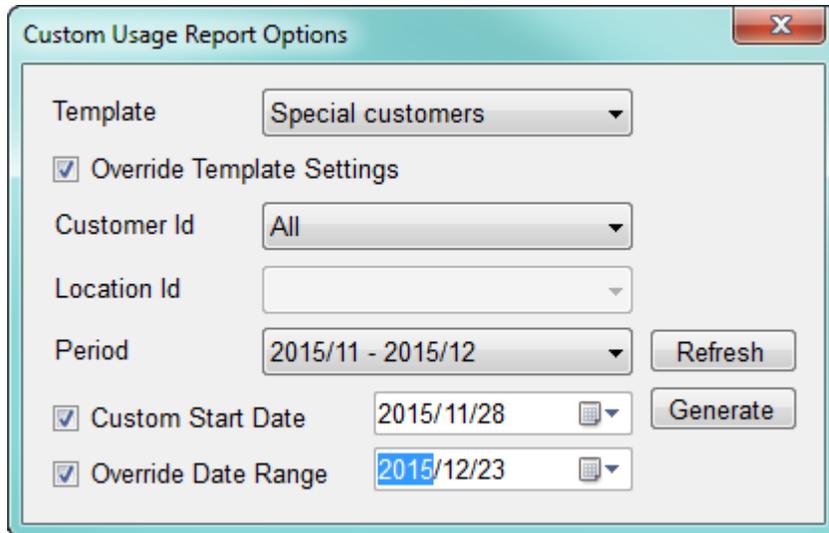
2. Select the custom usage report template you want to use from the pull-down menu.
3. If you want to generate the report for another customer and/or location, or for alternate dates, click the **Override Template Settings** box to check it. You will then be able to choose another customer from the pull-down menu. Once you have chosen a customer (other than "All"), you will be able to choose a customer location from the pull-down menu.
4. Click the **Refresh** button.

This screenshot is identical to the one above, showing the "Custom Usage Report Options" dialog box with the same configuration: Template set to "Special customers", Override Template Settings unchecked, empty Customer Id and Location Id fields, Period set to "2015/11 - 2015/12", Custom Start Date set to "2015/11/28", and Override Date Range set to "2015/12/28". The Refresh and Generate buttons are also present.

5. You will now be able to select the period for the report from the pull-down menu. If you chose earlier to override template settings, you can also:
 - Change the start date - click the **Custom Start Date** box to check it and select the start date from the calendar displayed when you click the arrow.

- Override the custom report's date range - click the **Override Date Range** box to check it and select the end date from the calendar displayed when you click the arrow.

See the example screen, below.



The screenshot shows a dialog box titled "Custom Usage Report Options" with a close button (X) in the top right corner. The dialog contains several fields and checkboxes:

- Template:** A dropdown menu set to "Special customers".
- Override Template Settings**
- Customer Id:** A dropdown menu set to "All".
- Location Id:** An empty dropdown menu.
- Period:** A dropdown menu set to "2015/11 - 2015/12".
- Custom Start Date:** A date field set to "2015/11/28" with a calendar icon.
- Override Date Range:** A date field set to "2015/12/23" with a calendar icon.

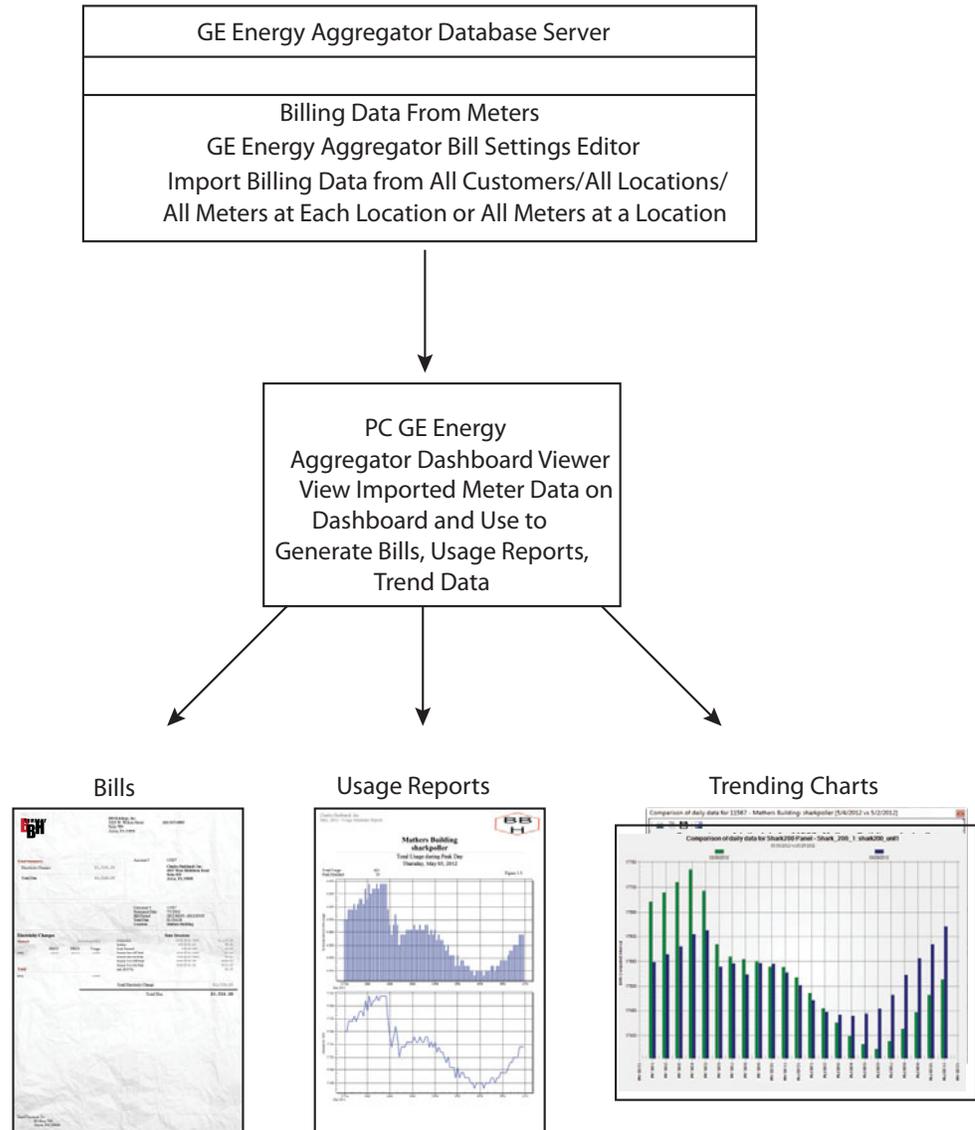
There are two buttons on the right side: "Refresh" and "Generate".

6. Click **Generate** to generate the report. The report will be automatically shown, but is accessible under:
C:\Users\Public\Public Documents\GE Applications\Energy Aggregator\
Reports\Custom Usage\User
Note that this path can be changed - see "Path Setting" on page 8-15, for instructions.

6.4 Generating and Viewing Customer Bills

You use the GE Energy Aggregator application’s GE Energy Aggregator Dashboard Viewer to generate and view bills. See the diagram below.

Figure 6-8: Bill Generation through the GE Energy Aggregator Application



Bills and reports are automatically generated every twelve hours, for any location for which there is a full months’ worth of data. You can also manually generate bills and reports if you want.

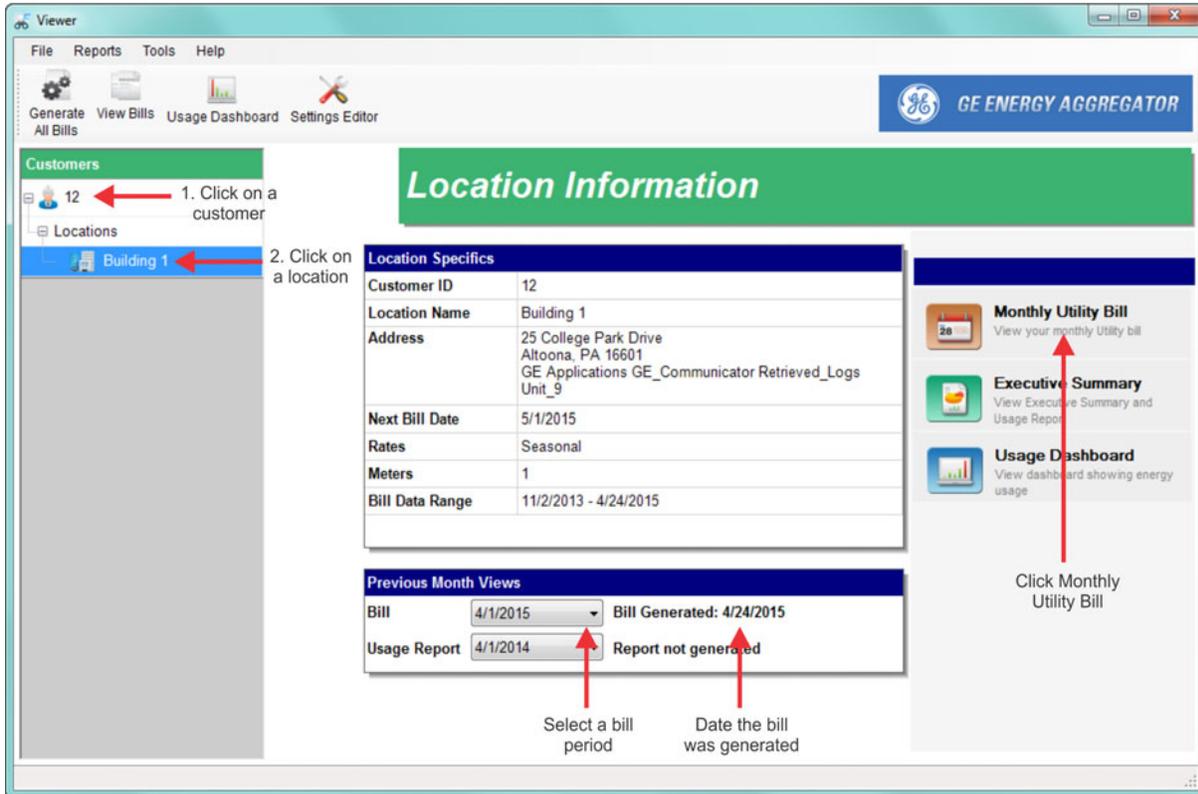
6.4.1 Individual Bills

Bills can be generated individually for a specific location and bill period.

1. Select the location from the **Location Tree** on the left of the main screen, then select the **Bill Period** to view by selecting it in the list of **Available Bill Data**. If the bill has already been generated for the period, the bill generation date will be shown next to the billing period. See the screen shown below.



It may take a while for the data to be displayed if there are multiple meters at the location, or if there is a lot of data to search. Please be patient.



2. Click the **Monthly Utility Bill** icon. The software checks to see if the period you selected contains valid data.



If you want to generate a bill for a time period outside of the regular billing period, for example, a bill for only 3 days, hold control-shift when clicking the **Monthly Utility Bill** button, and then enter the date range for the bill you want to generate.

- If the Period contains errors, the **View Errors** icon appears (see the partial screen, following). Click this icon to see a list all of the errors that prevent the bill from being generated.

Location Information

Location Specifics	
Customer ID	12457
Location Name	Building 6
Address	602 Juniata Gap Road Alttona, PA 16601
Next Bill Date	11/1/2013
Rates	Electricity

View Monthly Data


View bill errors


Executive Summary Usage Report

- Click on a channel to view the errors in the meter data records. Follow the instructions in Section 7.1.7 to correct errors.



- Errors can only be corrected from the GE Energy Aggregator Settings Editor.
- Typically, the errors in DEMAND and INTERPOLATE.INTERVAL are caused by the problems in the Root Commodity value. Correct that value before checking the others.
- If the Period contains no data, the **Monthly Utility Bill** icon is greyed out and displays the message "Unable to generate monthly bill: too many records missing from period." This happens if you have less than 2 days' worth of data.

3. While the Bill is being generated, the progress is displayed in a screen.



You can generate multiple bills for a single bill period, so if you click the **Generate Monthly Bill for Selected Bill Period** icon twice, you will generate two bills.

4. Once the bill is generated, it opens in your screen. See the example bill below.



Provider Information

Greater Altoona Realty Corp
 10 W. 8th Street
 Suite 300
 Altoona, PA 16601
 555-980-4785

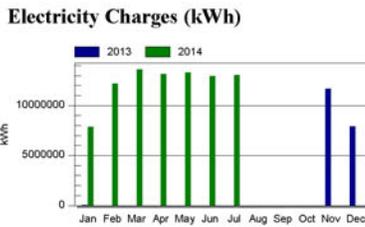
Customer Information

Account 1
 College Park Apartments
 1 College Park Drive
 Altoona, PA 16601

Total Summary		
Electricity Charges		\$19,527.44
Total Due	Total Charges	\$19,527.44
Due Date	Due Date	11/14/2014

Customer 1
 Statement Date 10/31/2014
 Bill Period 7/1/2014 - 7/31/2014 (31 Days)
 Total Due \$19,527.44
 Location Building 1

Usage Chart



Meter Usage

Meter	PREV	PRES	Usage
1500_NJD	N/A	N/A	175
1800ShamesDr	186008	206126	20118
Office DS	203	252	50
Office JK	29	38	9
Office JS	203	252	50
Office RK	1401	1578	177*
Office RM	229	293	64
Office RP	68	83	16
Shark200_Unit9	40039580	53035912	12996332
Total			13016989

Rate Structure:	Electricity	Itemized Charges
Season Two Holiday	433198 @ \$0.0015	\$649.80
Season Two Off Peak	3414425 @ \$0.0015	\$5,121.64
Season Two On Peak	9169366 @ \$0.0015	\$13,754.05
Usage (0.01%)		\$1.95
Total Electricity Charge		\$19,527.44
	Total Due	\$19,527.44

Provider Notes

Thank you for your prompt payment.

NOTE: If this bill was generated from Interval Energy data, there will be no PREV(ious) or PRES(ent) usage values.

Remittance Address

Send Payment To:
 Greater Altoona Realty Corp
 PO Box 3452
 Altoona, PA 16601-3452

6.4.2 Generate Bills Manually

Bills are generated manually from the GE Energy Aggregator Dashboard Viewer. When a bill is generated, the software analyzes the usage data for the meters at a location, and applies the configured rate structure to that data.

A bill is always generated for a bill period, which is the date range from the billing date of the previous month, to the billing date of the current month. A bill period need not contain a full month's worth of data: a bill can be manually generated if there is at least two days' worth of data.

Generate All Bills

1. From the GE Energy Aggregator Dashboard Viewer main screen, click the **Generate All Bills** icon.
2. While the software is scanning for bills to generate, the list of periods found so far are displayed. You can stop the scan at any time to generate bills from the list of values scanned so far: to do so, click **Cancel**.
3. When scanning is done (or after you've clicked **Cancel**), the list of available periods is displayed. See the screen shown below.

Bill Period	Generate?	Status
12457		
Building 6		
5/1/2013 to 6/1/2013	<input checked="" type="checkbox"/>	OK
6/1/2013 to 7/1/2013	<input type="checkbox"/>	Invalid records
7/1/2013 to 8/1/2013	<input checked="" type="checkbox"/>	OK
8/1/2013 to 9/1/2013	<input checked="" type="checkbox"/>	OK

Select the checkbox for the bills to generate. If the bill has already been generated, or there are errors with the bill data, then the bill has already been deselected for generation.

4. Select which periods you want to generate bills for by clicking in the **Generate** box. By default, all periods which have no errors, and haven't been generated before, are selected for generating bills (their box is checked).

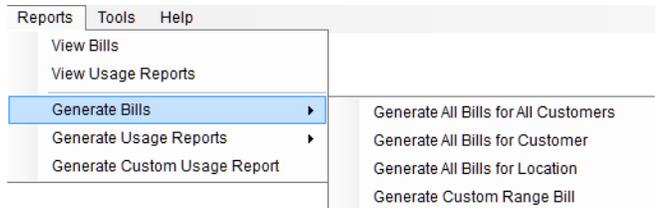


- Any period which already has a bill generated for it appears in grey with an unchecked box. You can still select it, if you want to generate another bill for that period, e.g., if the meter's data was changed after the bill was generated. This can happen if you generate a bill before the end of the month.
- Any period which contains errors, or is missing too much data, appears in red. You cannot generate bills for these periods until you correct the errors (see Section 7.1.7 for instructions).

- When you've selected all the periods you want to generate bills for, click **Generate**. While the bill is being generated, the progress is displayed. The **Bills to Generate** screen closes once the bills have been generated.

Generate All Bills for Customers/Location

Since the **Generate All Bills** option can take a long time to complete, the GE Energy Aggregator application gives you two additional options for generating a smaller number of bills. Access these options from the **Reports > Generate Bills** submenu from the GE Energy Aggregator Dashboard Viewer main screen's Menu bar. The submenu is shown below.



- Click **Generate All Bills for Customer** to generate all available bills for all locations for the selected customer (the customer currently displayed on the screen).
- Click **Generate All Bills for Location** to generate all available bills for the selected location (the location currently displayed on the screen).

You will see the Bills to Generate screen shown on the previous page. The instructions are the same as those shown in the **Generate All Bills** section on the previous page, steps 4 and 5.



NOTE

The **Generate All Bills for All Customers** option is the same as the **Generate All Bills** option on the previous page.

6.4.3 View Bills

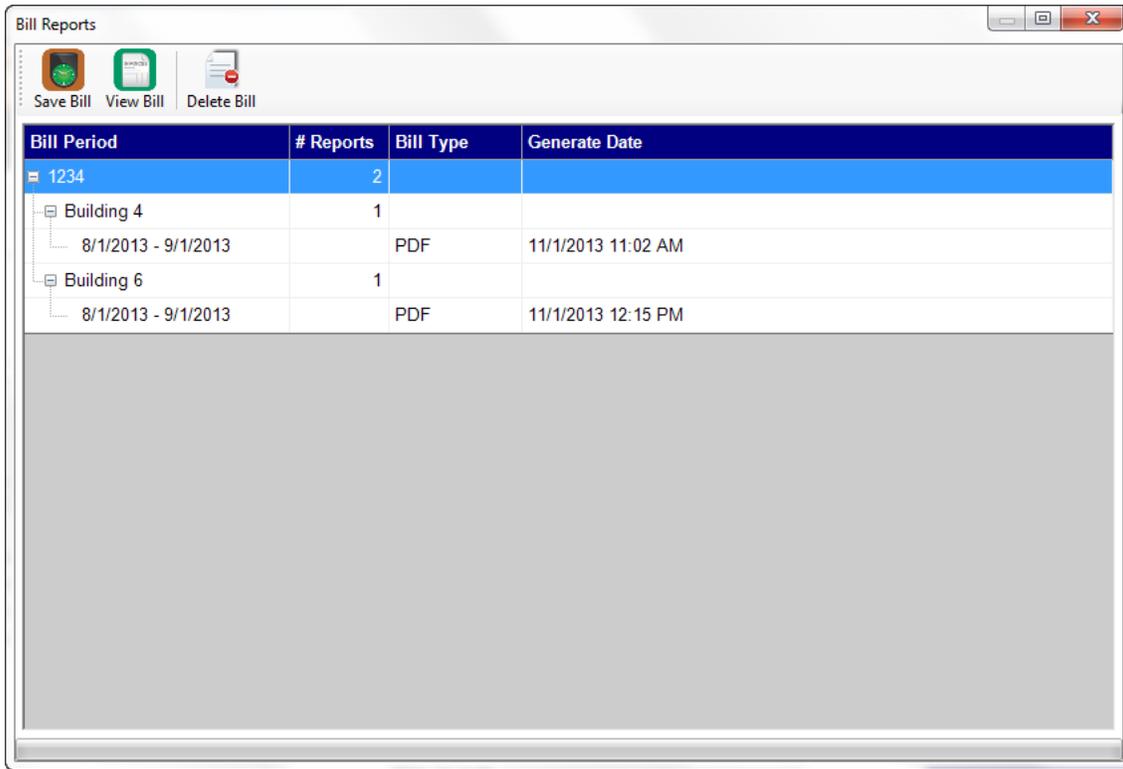
- You can view generated bills either by clicking the **View Bills** icon in the GE Energy Aggregator Dashboard Viewer's main screen, or by clicking **Reports > View Bills** from the screen's Menu bar.



NOTE

The viewed bill is just a temporary file that has been downloaded from the GE Energy Aggregator Database server, where the bills are stored. Any changes you make to it are not saved on the Database server.

The list of all generated bills displays. See the example screen below.



Bill Period	# Reports	Bill Type	Generate Date
1234	2		
Building 4	1		
8/1/2013 - 9/1/2013		PDF	11/1/2013 11:02 AM
Building 6	1		
8/1/2013 - 9/1/2013		PDF	11/1/2013 12:15 PM

- Click on the **+** sign next to the customer to display the location; then click on the **+** sign next to the location to display the bills for the location.
- Click on the bill you want to view and click the **View Bill** icon. A PDF of the bill opens (see the example bill on the previous page).
- You have the following options:
 - To save a copy of the bill on your computer, click the **Save Bill** icon. (Bills are stored on the database server. To get a local copy, you need to save the bill on your computer.) A screen opens which lets you choose the location of the saved bill and give it a filename.
 - To delete the bill, click the **Delete Bill** icon. A Confirmation window opens. Click **Yes** to delete the bill; click **No** to keep the bill.

WARNING

WARNING! Be careful when deleting bills. Once you delete a bill, it is removed from the server. (You can re-generate the bill later.)

You can delete multiple bills by selecting a range of bills, and clicking **Delete**. Make sure that you've selected **only** the bills you want to delete.

WARNING

WARNING! Be careful when deleting across multiple locations, as it is easy to select more bills than you intend, or miss some you want to delete.



NOTE

Removing a customer or location from the system doesn't delete the bills that have already been generated for them. If you want to get rid of the bills, you must delete them manually.

GE Energy Aggregator

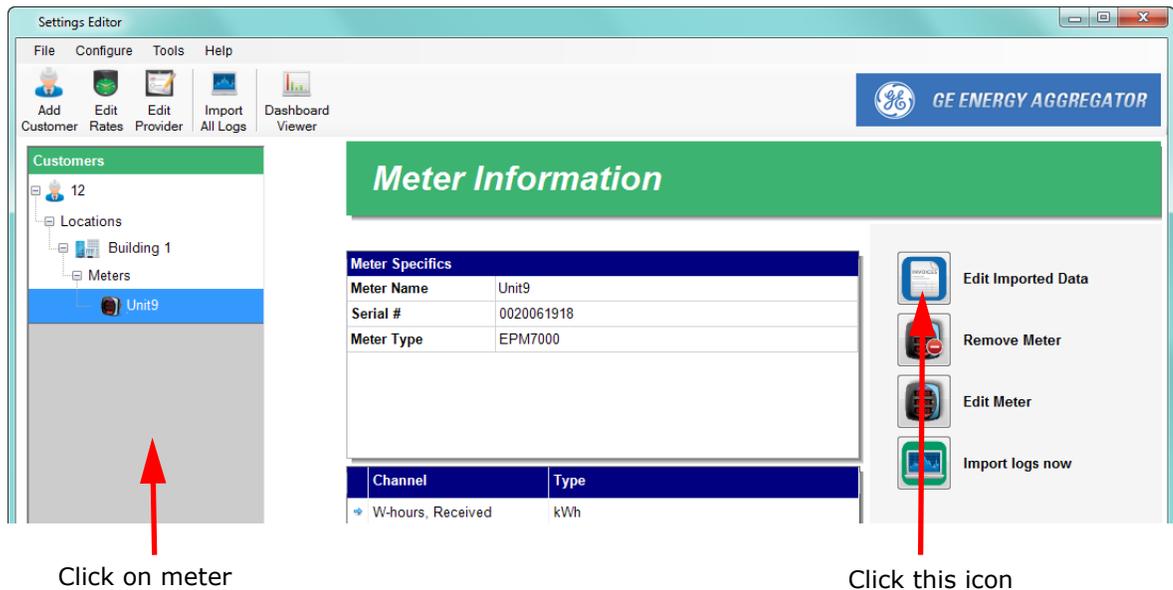
Chapter 7: Managing Data

The GE Energy Aggregator application gives you access to the usage data in a variety of ways. You can view the data, copy it, export it, and correct any errors in the meter data.

7.1 View/Copy/Export Meter Data

Follow these steps to view, copy, or export the imported meter data.

1. From the GE Energy Aggregator Settings Editor main screen, use the Tree menu on the left of the screen to navigate to the meter you want. See the example screen below.



2. Click the **Edit Imported Data** icon.

Data Search

Meter

Data Point

Start Date

End Date

All Timestamps

Bill Period

Values to show

All Values

All Errors

Zero Counters

Rollover

Increasing Too Fast

Wobbly Value

Decreasing Counter

Good Values

3. This screen lets you choose which data point (channel), date range, and type of values you want to view.
 - **Meter:** from the pull-down menu, select the meter whose data you want to view. Only meters at the currently selected location are shown.
 - **Data Point:** the channel of the data to view. There are typically three values for each commodity:
 - **<commodity>:** this is the value from the meter's logs. These are your base usage values, and are the only values you can change, as all other values are computed from this value; e.g., kWh. If you want to view the "raw" usage data from the meter, select this option.
 - **<commodity>.interpolate.interval:** this is the computed interval value of the commodity, typically in 15 minute periods. The values are interpolated from the root commodity values to correct for odd timestamps and missing data. These values cannot be changed, as they are computed from the root commodity; e.g., kWh. If you want to view the computed interval values, select this option.
 - **<commodity>.DEMAND:** this is the maximum Demand for an hour period, computed from the interpolated interval values for the previous hour. These values cannot be changed, as they are computed from the root commodity; e.g., kWh.DEMAND. If you want to view the max Demand, select this option.
 - **Start Date:** the start date of the data to show. You can only change this field when All Timestamps and Bill Period are unchecked.
 - **End Date:** the end date of the data to show. You can only change this field when All Timestamps and Bill Period are unchecked.
 - **All Timestamps:** select this checkbox to automatically select the entire range of stored data to show.
 - **Bill Period:** select this checkbox to see the date range of the billing data in all available billing periods. Click the pull-down menu to display the date ranges.

When you select a date range, the beginning and ending date are displayed in the Start Date and End Date fields.

- **Values to Show:** the checkboxes provide filters, so that only the data you want to see is shown, e.g., only Errors.
 - **All Values:** show all the values. If this is selected, no other option is valid.
 - **Rollover:** show values flagged as a rollover. This occurs when the previous value is near the configured rollover point, and the current value is near zero. This is not considered an error.
 - **Increasing Too Fast:** show values flagged as increasing too fast. Values which are increasing more than 3 times the trend in the previous hour are considered as increasing too fast, and might indicate a problem. This is considered an error, and must be cleared before a bill can be generated.
 - **Wobbly Value:** are interval energy values which rapidly swing up and down in sequential periods.
 - **Decreasing Counter:** show values flagged as a decreasing counter. Except for the Rollover condition, counters (such as Energy and pulse accumulators, used for Commodities) should never decrease. If they do, this indicates a problem, and must be cleared before a bill can be generated.
 - **Good Values:** show values which are not flagged with an error condition.
4. Once you've selected the filters you want to use, click **View**. The data is retrieved from the database and displayed. Values which are flagged as a warning are shown in Green. Values which are errors and will prevent a bill from being generated are shown in Red. See the example screen below.

Time	Value	Error Code	Error Desc	Modified Value	Modified Date
3/9/2014 12:15 AM	36287016.00	0		0.00	
3/9/2014 12:30 AM	36291596.00	0		0.00	
3/9/2014 12:45 AM	36296176.00	0		0.00	
3/9/2014 1:00 AM	36300756.00	0		0.00	
3/9/2014 1:15 AM	36305336.00	0		0.00	
3/9/2014 1:30 AM	36309920.00	0		0.00	
3/9/2014 1:45 AM	36314504.00	0		0.00	
3/9/2014 3:00 AM	36319088.00	-104	Counter values don't ma	0.00	
3/9/2014 3:15 AM	36323676.00	-104	Counter values don't ma	0.00	
3/9/2014 3:30 AM	36328260.00	0		0.00	
3/9/2014 3:45 AM	36332852.00	0		0.00	
3/9/2014 4:00 AM	36337440.00	0		0.00	
3/9/2014 4:15 AM	36342032.00	0		0.00	
3/9/2014 4:30 AM	36346624.00	0		0.00	
3/9/2014 4:45 AM	36351216.00	0		0.00	
3/9/2014 5:00 AM	36355808.00	0		0.00	
3/9/2014 5:15 AM	36360396.00	0		0.00	
3/9/2014 5:30 AM	36364992.00	0		0.00	
3/9/2014 5:45 AM	36369588.00	0		0.00	
3/9/2014 6:00 AM	36374184.00	0		0.00	



- This screen is available from both the GE Energy Aggregator Settings Editor and the GE Energy Aggregator Dashboard Viewer, but you can only modify the values using the screen from the GE Energy Aggregator Settings Editor. To view this screen from the GE Energy Aggregator Dashboard Viewer, select the meter whose data you want to view and click **Tools > View Bill Data**. Only 20,000 points are displayed on the interface at any time. If you are trying to view more than that number of points, click the **Next** and **Previous** buttons to scroll the data.
- The preferred method for correcting data errors is described in Section 6.2.
- When viewing Interval Energy values, the times displayed for the values are the beginning of the billing interval the value belongs to.
- The buttons on the top of the screen and their functions are shown below.



Refresh: click after Update Data icon to display changes



Update Data: click after making changes



Click to clear an Invalid Flag from the currently selected data value



Click to Delete/Undelete the currently selected data value



Click to export data



Click to show data values that have been removed - then you can click the Undelete icon and the Update Data icon to restore the value

7.1.1 Export Meters Data

You can export meter data in two ways.

From the Edit Imported Data Screen (shown in Section 7.1: only for GE Energy Aggregator Settings Editor)

1. Click the **Export Data** icon shown above.

This screen lets you export the data to either the clipboard or a .csv file. Then you can copy the data into another application, such as the Microsoft Excel® application, or use it in your own applications.

2. Use the options in the **Output** box to specify where to export the data:
 - **CSV File:** exports the data to a CSV (Comma Separated Value) Text file (though you can select other than commas to separate the exported values). When you select this option, you must enter a Filename in the bottom of the screen.
 - **Clipboard:** exports the data to the clipboard. Be careful when using this option, as the amount of data being exported may be very large. When you select this option, you do not enter a filename.
3. The setting in the **Layout** box controls the layout of the data being exported. The only option is Tabular, which means the data is exported in a table format: rows are data entries and columns are fields.
4. The settings in the **Format** box control how the output is formatted.
 - **Column Separator:** use this setting to select the character used to separate fields in a row.
 - **Comma (,)** is the most common separator.
 - **Tab** should be selected if you plan to paste the data into a spreadsheet program, e.g., the Microsoft Excel® application.
 - **Space** should be selected if needed by your application.
 - **Line Separator:** use this setting to configure the sequence of characters used to indicate the end of a row. Your options are CRLF and LF. Different operating

systems and software applications expect different line endings, but CRLF is the most common.

- **Include Column Headers:** click this box to put the name of the field at the top of the column, before the start of the data. You may want to leave this box unchecked when using automated processing, if your application doesn't know to discard the first line (the column headings).
 - **Include Billing Event Information:** click this box to export analysis information, such as error code or modified date, along with the regular data. If you leave this box unchecked, only the Timestamp and Value are exported.
5. **File Options:** you will see this field if you choose the .csv file Output option. Click **Browse** to locate the directory for your file and enter a filename.
 6. Click **Export** to export the data. You will see a Confirmation window when the export is complete. Click **OK** to close the window and the Data Export Options screen.

From the Tools > Export Meters Data (for either the GE Energy Aggregator Settings Editor or the GE Energy Aggregator Dashboard Viewer.)

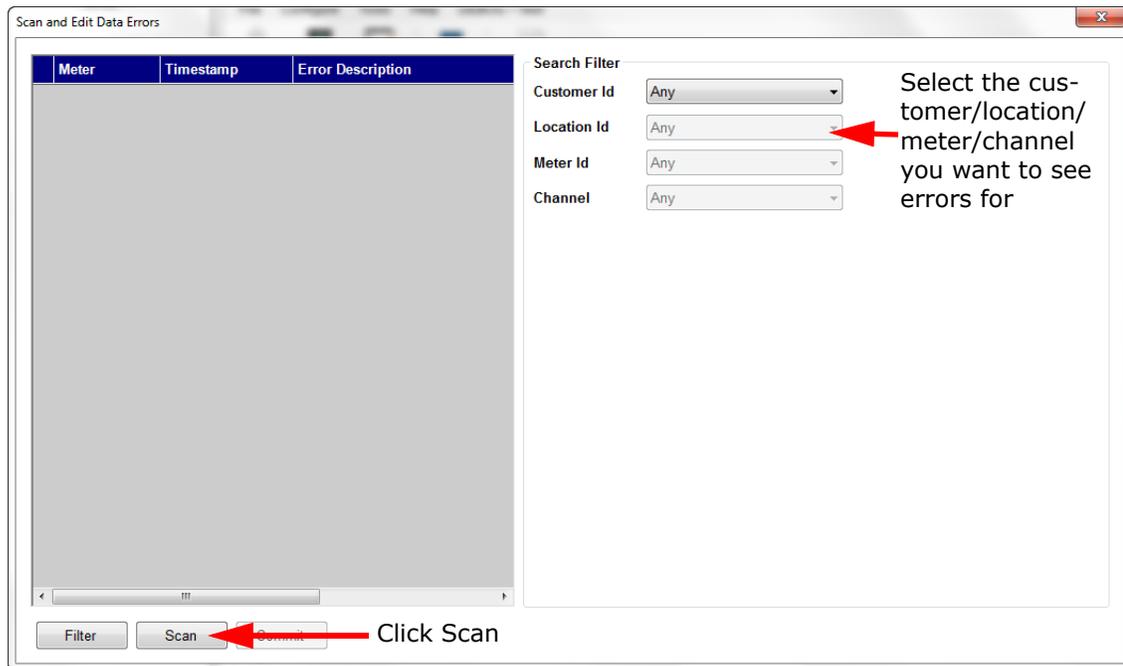
1. **Click Tools > Export Meters Data.**

2. The currently selected customer and location are displayed in the screen.
 - Select **Commodity** from the pull-down menu
 - Click the **Export Cost** checkbox if you want cost data exported
 - Either click **Bill Period** and select a period from the pull-down menu, or click **Custom Range** and select the Start and End Date from the pull-down menus.
3. Click **Export**. A window opens letting you select the location of the .csv file. You can copy the data into another application, such as the Microsoft Excel® application, or use it in your own applications.

7.2 Edit Data Errors

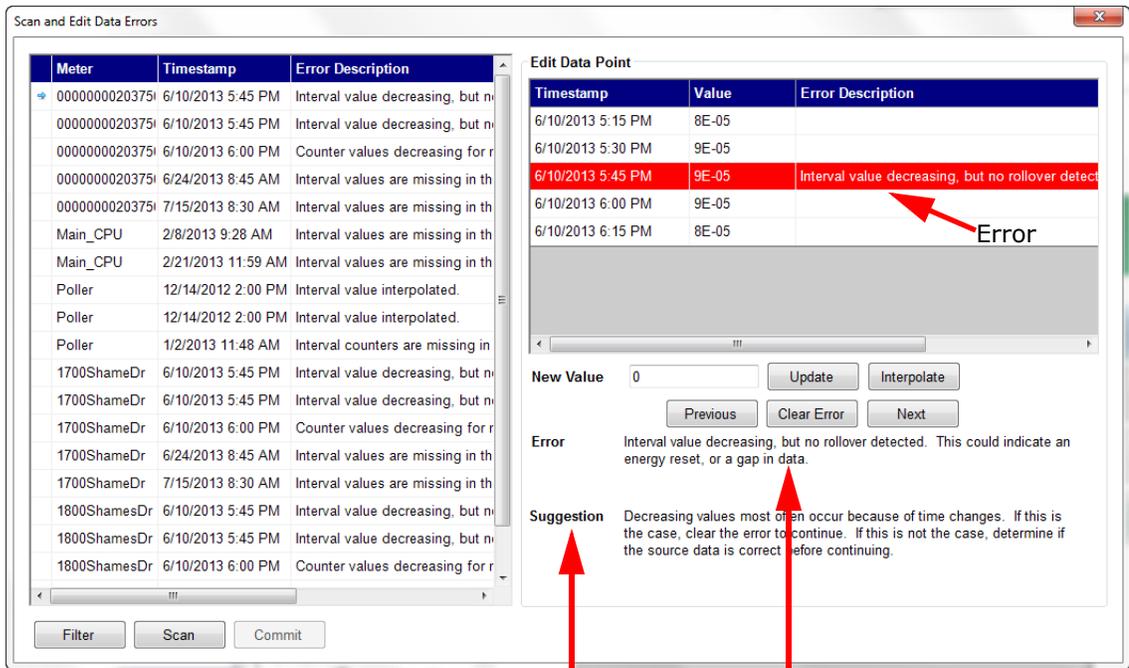
Following is the recommended procedure for correcting data errors, for example, zero values due to problems in communication.

1. From the GE Energy Aggregator Settings Editor Main screen, click **Tools > Edit Data Errors**. You will see the screen shown below.



2. You use the fields on the right side of the screen to refine your search for data errors. You can specify customer, location, meter, and/or channel, or select Any which will display data errors for all of the entries in that field; for example, to see data errors for all of the meters at a location, select the Location from the Location ID pull-down menu, and then select Any from the Meter ID pull-down menu.
3. Click **Scan** to cause the software to begin looking for the data errors. When scanning is done, any errors will display on the left side of the screen, along with the meter and timestamp. The fields on the left display the Error Description field, and detailed information regarding the error and ways to handle it are displayed on the right side of the screen.

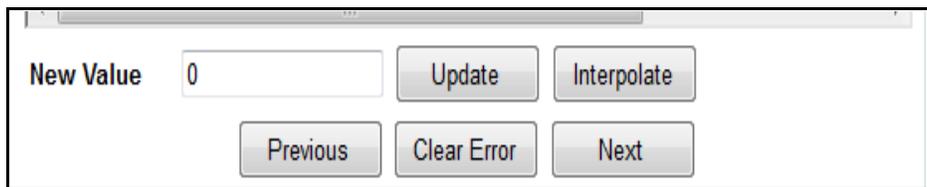
See the example below.



Suggested way to handle the error

Information about the error

- The top right of the screen displays the timestamp and value of the erroneous data and the timestamps and values around it, to help you diagnose the error and decide what to do about it.
- The bottom right of the screen gives information about the error and the suggested way to handle it.
- Middle right of the screen contains options you can use to handle the error.



4. Use the options shown above to handle the erroneous data:
 - **New Value:** if you know what the value should be, enter it in this field. If the value is wrong, but you don't know what it should be, use Interpolate (see information below).
 - **Update:** after entering a new value, click this button. The next error, if there is one, is displayed. Update uses the new value for the error record. It doesn't clear the error, though, so if the new value is wrong, it will still be an error.

- **Interpolate:** if you don't know what the value should be, click this button to have the software calculate the new value for you. The software can only do this if there are enough intervals before and after the error for it to compute the value from.
 - **Clear Error:** if the error is not something that you can correct by entering a new value, e.g., missing data, click this button. This flags the value as valid, and tells the system that you want to use this value to compute reports.
 - **Previous:** to view the error before this one, click this button.
 - **Next:** to view the error after this one, click this button.
5. Click the **Commit** button to save all your changes. The software re-analyzes the data, and presents the results in the **Scan and Edit Errors** screen. If all the data is good, the screen should show no errors.
 6. If you have any more errors to correct, click **Filter** to re-display the selection fields on the right side of the screen, and then click **Scan** to view and address the errors. If you do not have any more errors to correct, click **X** to close the window.

7.3 Re-Aggregate All Locations

You can force all aggregate meters to reaggregate the data from their locations:

1. From the GE Energy Aggregator Settings Editor, click **Tools > Database Maintenance > Re-aggregate all Locations**.
2. You will see a progress screen as the re-aggregation is taking place.

7.4 Rebuild Period Analysis

All data ranges are based off the Period Analysis, to provide faster access to data. You can force each location to rebuild this analysis:

1. From the GE Energy Aggregator Settings Editor, click **Tools > Database Maintenance > Rebuild Period Analysis**.
2. You will see a progress screen as the rebuilding takes place.

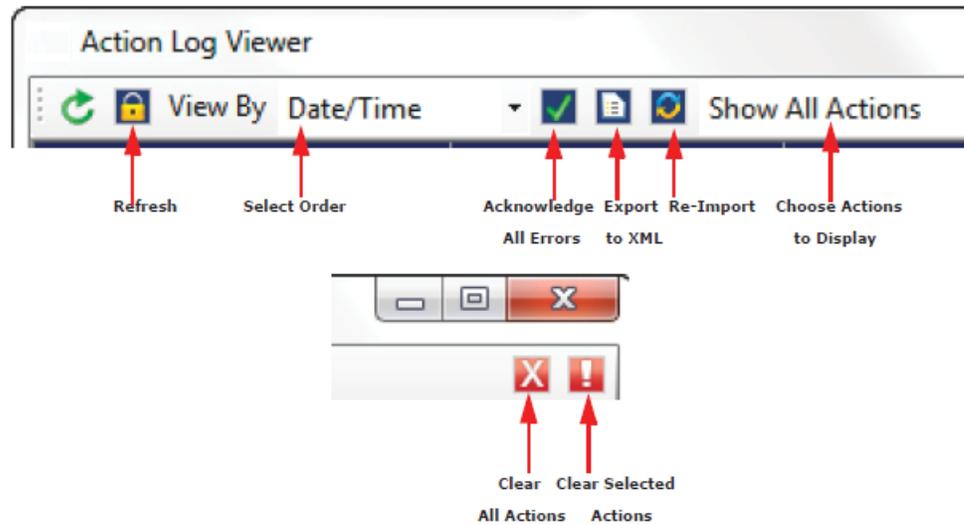
GE Energy Aggregator

Chapter 8: Additional Features and Advanced Functions

8.1 Viewing the Action Log

The GE Energy Aggregator application has a log in which actions such as importing, generating bills, updating data and sending emails are stored. You can view this log through the Action Log Viewer, which is available from the GE Energy Aggregator Settings Editor. In addition, errors can be viewed and corrected from the Action Log Viewer.

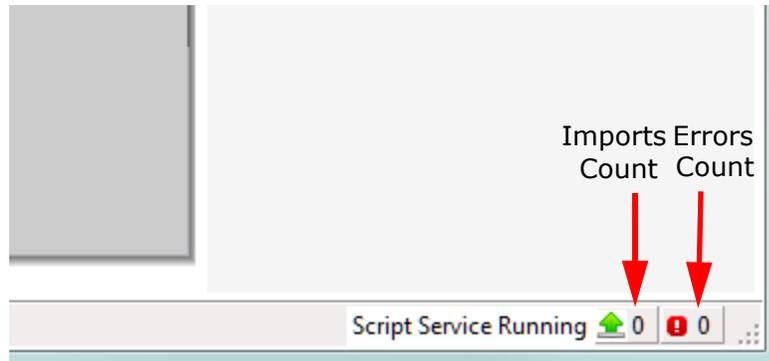
4. The options at the top of the screen let you:



- Refresh the action display by clicking the **Refresh** icon.
 - Select the order of action display by clicking in the **View By** pull-down menu. The choices are Date/Time (the default setting), Customers, and Action Type.
 - Acknowledge all Errors by clicking the checkmark icon.
 - Export to XML by checking the document icon: this copies the action log in XML format - you can then paste it into an XML file.
 - Re-import meter data by selecting the two arrows icon.
 - Select between **Show All Actions** and **Select Unacknowledged Action Errors** from the pull-down menu.
 - Clear all actions by clicking the red **X**. You will see a Confirmation message window.
 - Clear any selected action (highlighted action) by clicking the red exclamation point. You will see a Confirmation message window.
5. If there is an error associated with an action, you can correct the error and then perform the action again from the Action Log Viewer screen. For example, if there is an error in importing, you can correct it, and then click on the original action and select **Re-import Data**.

8.1.1 The Service Status Bar

The bottom right of the GE Energy AggregatorSettings Editor gives you information on the number of pending meter data imports and the number of failed imports.



The Imports Count will only show meters for which there is actually something to be imported.

To review any imports which failed, and to see details on the pending imports, click on the green arrow to display the menu with **View Imports**. When you click on **View Imports** a screen displays that allows you to see the current status of meters being imported, as well as the history of the imports.

Import Status		Import History						
Queue	0	6 Imports, 1 No Action						
Status	Updating period analysis [11/5/2016 12:00:00 AM->11/6/2016 11:45:00 PM]	Import Start	Device	Meter	Duration	Data Start	Data End	Error #
Device		01/09/2017 09:58		test	00:00:01.0338950	01/09/2016 09:58	01/16/2017 09:58	
Meter	~loc.vm.08D43875F2BDD5D9	01/09/2017 09:58		~loc.vm.08D43875F2BDD5D9	00:00:00.9937049	03/12/2016	03/13/2016 23:45	
Time Start	01/09/2017 09:58:07	01/09/2017 09:58		test	00:00:00.9564110	01/09/2016 09:58	01/16/2017 09:58	
		01/09/2017 09:57		~loc.vm.08D43875F2BDD5D9	00:00:02.3975328	09/01/2016	10/31/2016 23:45	
		01/09/2017 09:57		test	00:00:02.0326872	01/09/2016 09:57	01/16/2017 09:57	

This screen can be used to identify if there are any problems with the data being imported, as well as when a meter's data was last updated.

The Import Status section of the screen provides information about the imports currently being processed. The fields shown are:

- **Queue:** The number of imports which are currently pending to be done.
- **Status:** The action being performed by the current import.
- **Device:** If the meter being imported is connected to the GE MeterManager Meter List, the device will be listed here. This can be particularly useful, as GE MeterManager can automatically queue the import for the meter when it has finished retrieving the logs from the meter.
- **Meter:** The name of the GE Energy Aggregator meter that is currently being imported. For Location Virtual Meter Aggregations, the location will be listed here.
- **Time Start:** When the import started.

The **Import History** section of the screen provides information about what imports have been performed. It lists the last 1000 imports that have been performed. If nothing needed to be done for the import, it will be added to the No Action count, and no history item will be recorded.



NOTE

This history will reset when the GE MeterManager Service is restarted.

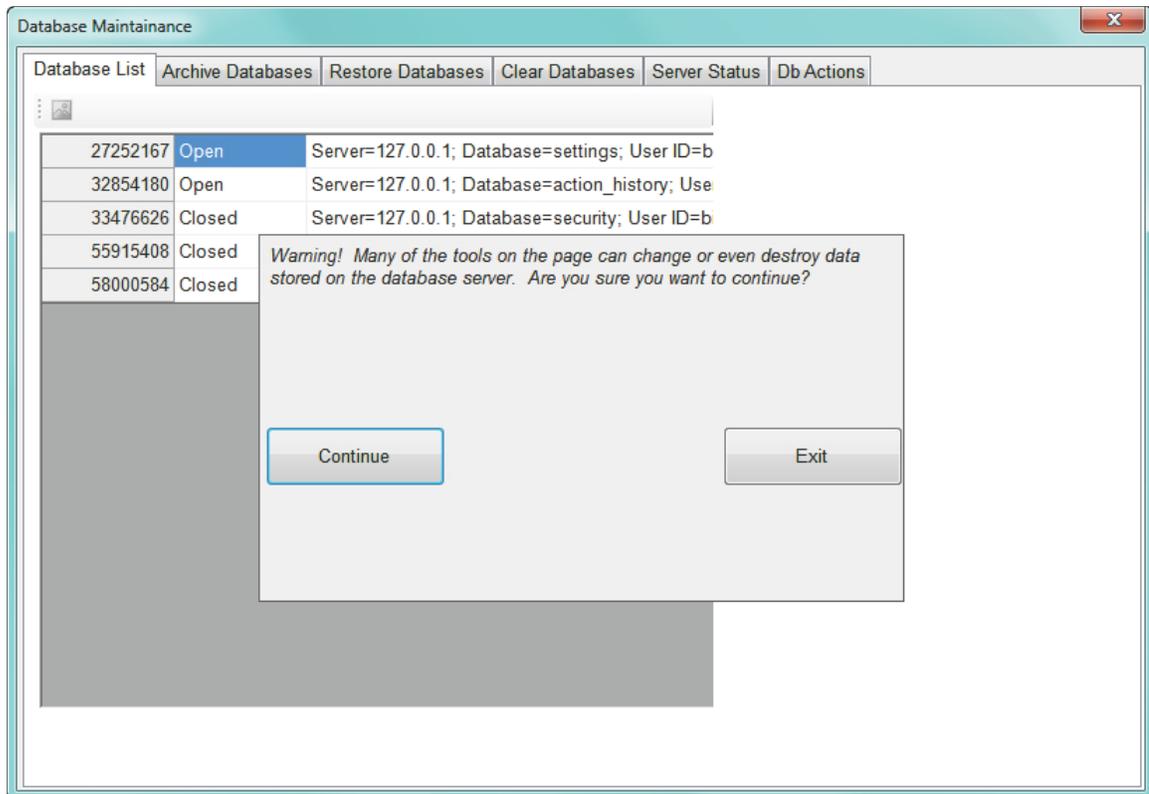
The fields shown are:

- **Import Start:** This lists when the import action started.
- **Device:** If the meter being imported is connected to the GE MeterManager Meter List, the device will be listed here. This can be particularly useful, as GE MeterManager can automatically queue the import for the meter when it has finished retrieving the logs from the meter.
- **Meter:** The name of the GE Energy Aggregator meter that is currently being imported. For Location Virtual Meter Aggregations, the location will be listed here.
- **Duration:** How long the import took.
- **Data Start:** The first timestamp of the data being imported to GE Energy Aggregator.
- **Data End:** The last timestamp of the data being imported to GE Energy Aggregator.
- **Error:** If any errors occurred while importing the data, they will be listed here.

8.2 Database Maintenance

The GE Energy Aggregator Settings Editor gives you options for maintaining the GE Energy Aggregator application database. To access these options:

1. From the GE Energy Aggregator Settings Editor, click **Tools > Database Maintenance > Maintenance Utilities** from the main screen's Menu bar. You will see the screen shown below, displaying a warning message.

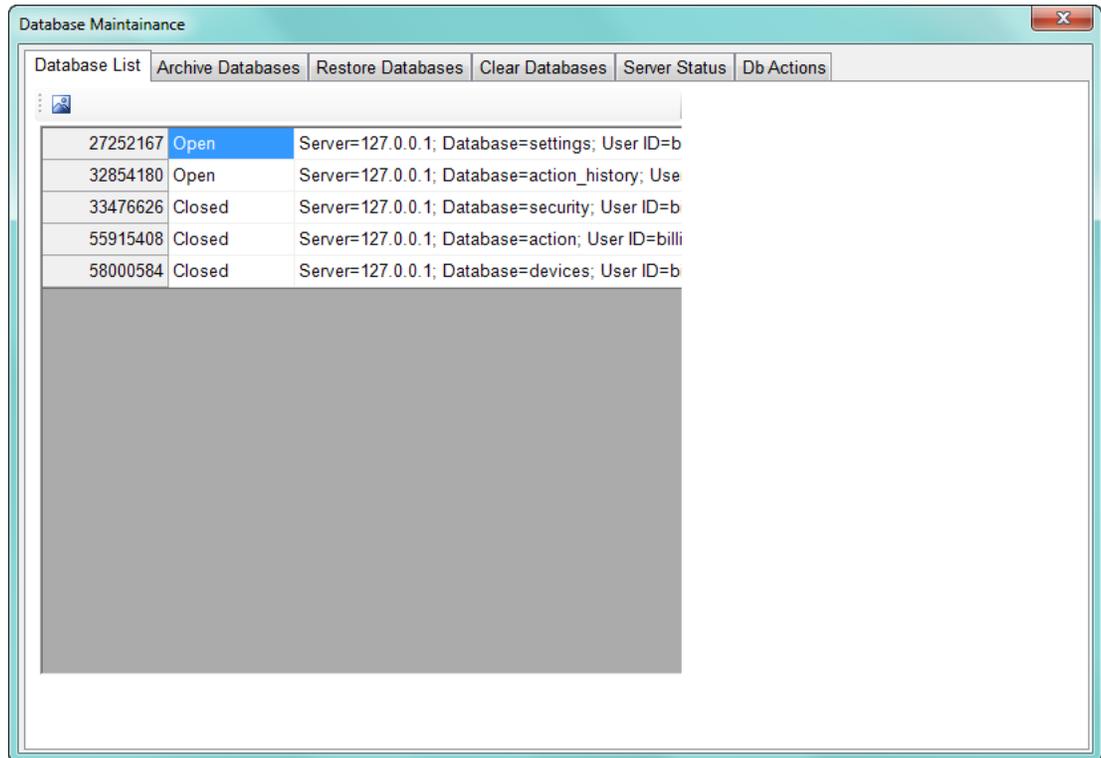


2. Click **Continue** to access the database options, explained in the next sections.

8.2.1 Database List

To view existing databases:

1. From the **Database Maintenance List**, click the **Database List** tab (this is the first tab displayed when the Database Maintenance screen opens, so you may not need to click the tab to see it).



2. This screen displays the status (Open or Closed) of the databases and information about them.

8.2.2 Archive Database Clusters

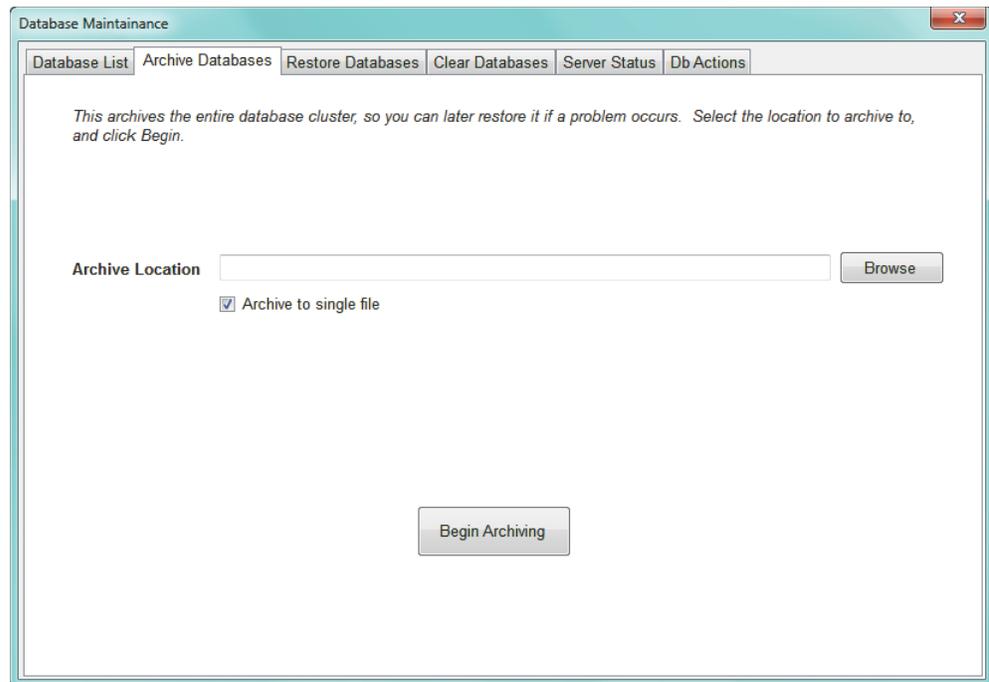
To ensure that your data is backed up, or if you want to migrate the database server from one computer to another, you can archive your database cluster. This creates a local copy of the data, which can later be uploaded to a server to restore the database to the saved condition.

NOTE: This function copies **all** of the data on the database server. Using this to restore to a server will **overwrite all** data.



- A database archive can be extremely large. For example, a database with hundreds of meters, with data accrued for a few years, can be at least 20GB in size. Make sure you have the room to store the archive.
- Only the data stored on the server is saved. The server’s settings and configuration must be manually re-configured when the data is restored.

1. From the Database Maintenance screen, click the **Archive Databases** tab.

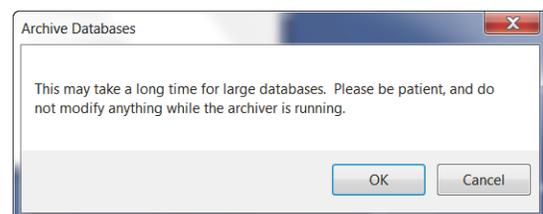


2. Click the **Browse** button to choose the location you want to save the archive to.
3. To save the database to a single file, leave the checkbox selected. This option makes it easier to store and transfer the archive, but may cause problems for older operating systems.

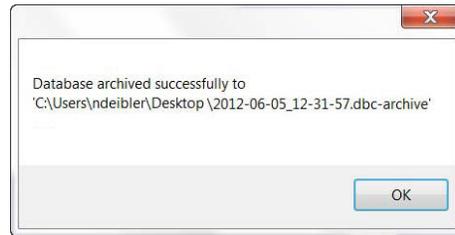


You should disconnect the database so that no one else can modify it while you are performing the archive. Otherwise the archive may be corrupted.

4. Click the **Begin Archive** button. You will see the message window shown on the right. Click **OK** to continue. Once you begin archiving the database, the process won't stop until the entire database has been archived. As the message says, this can take a very long time, so be patient.



5. You will see a progress screen while the database is being archived, and a message window once the archiving is successfully completed. See the screen below.



Click **OK** to close the message window.

8.2.3 Restore Database Clusters

If you ever need to recover from a corrupted database, or if you want to move your database server to another location, you can restore a database cluster from an archive created with the Archive Database tool.



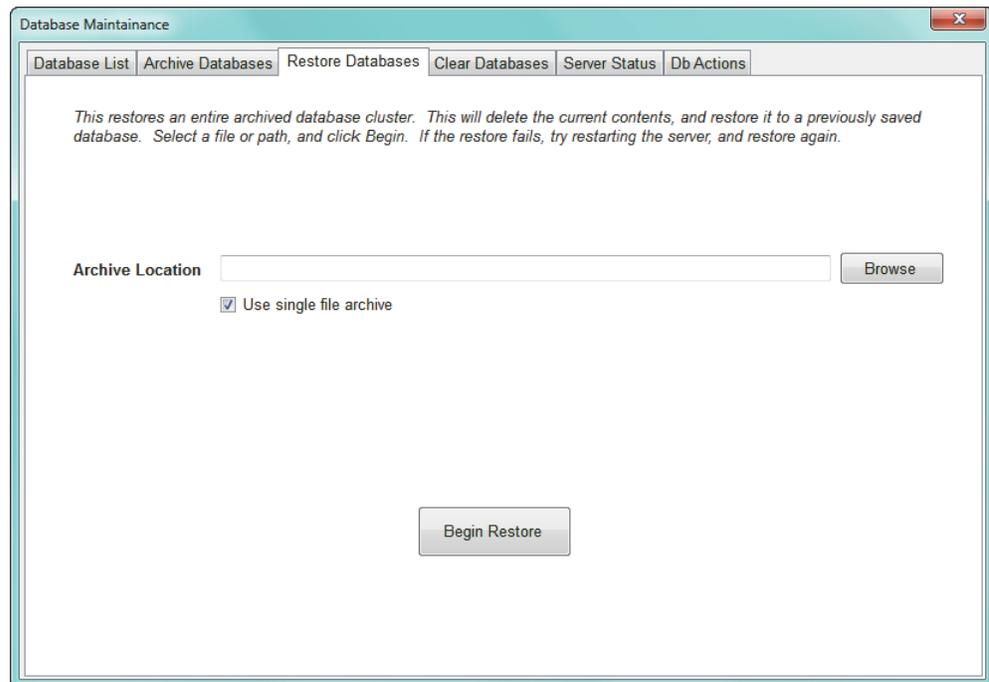
Restoring a database archive **overwrites all** the data in the database cluster. Any data already there will be lost.



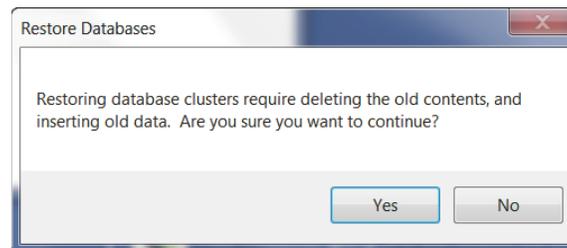
- Only the data stored in the database is restored. Any server configurations or back-end changes must be re-configured manually.
- Restoring a database archive requires that the GE MeterManager service be shut down - shutting down the service requires admin rights. If the service is not shut down, the database may not restore properly.
- When the Restore begins, you may get a UAC prompt to confirm the service control action.
- Once the restore completes, you will need to manually restart the GE MeterManager service. The easiest way to do this is to reset the computer, but you can also restart the service either through the Services Administrative Console, or through Cmd Prompt. To use Cmd Prompt, open an Admin Cmd-Prompt, and type the following command to start the GE MeterManager Service:

```
sc start metermanager
```

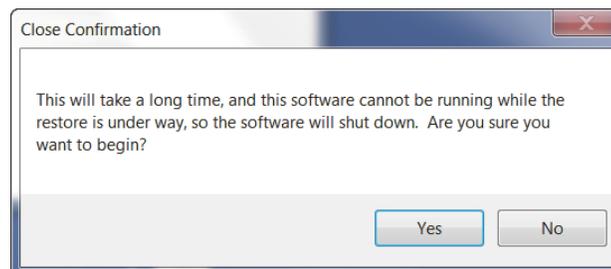
1. From the Database Maintenance screen, click the **Restore Databases** tab.



2. Click **Browse** to locate the database archive you want to restore.
3. If the archive was stored in a single file, leave the checkbox selected. If it was stored in multiple files, uncheck the box.
4. Click **Begin Restore** to restore the database. You will see the message window shown below.



5. Click **Yes** to continue. You will see the message window shown.



- Click **Yes** to continue. You will see the message window shown on the right. Key **RESTORE** in the blank field and click **OK**.



- While the database is being restored you will see a screen showing the progress. If there is a large amount of data, this process may take a long time to complete, e.g., it will take hours to restore a 20 Gigabyte database archive. When the restore is done, the window closes. You can now re-open the GE Energy Aggregator application.

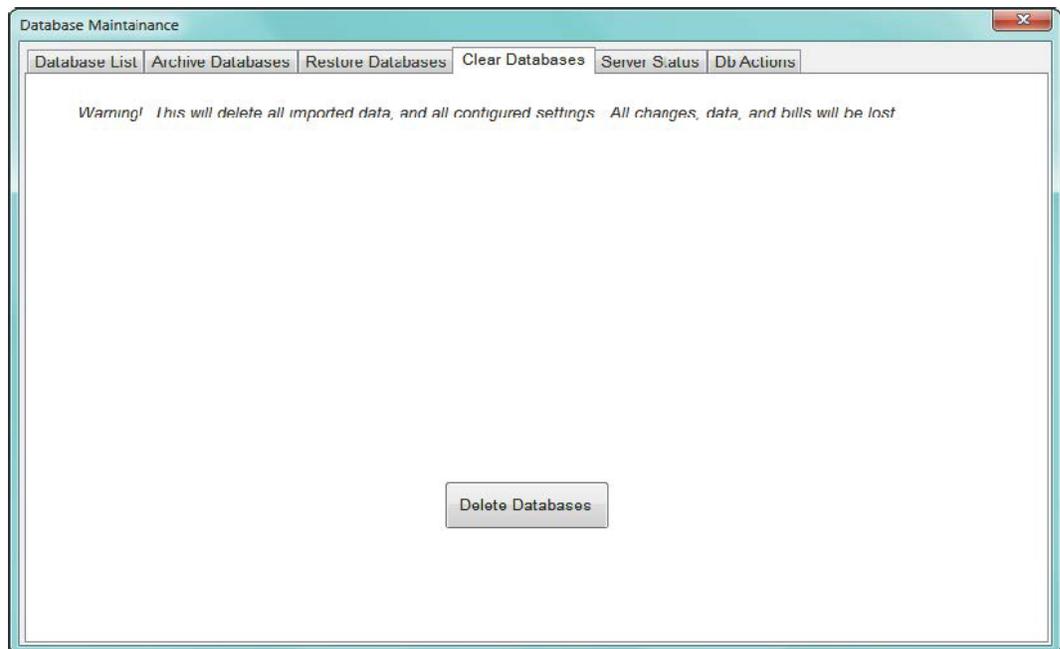
8.2.4 Clear Database

You can clear a database with this procedure.



Make **very sure** that you want to delete all of the data in the database before you click **Delete Databases**. This command deletes **all** imported data and **all** configured settings, including all bills and any changes you have made to data.

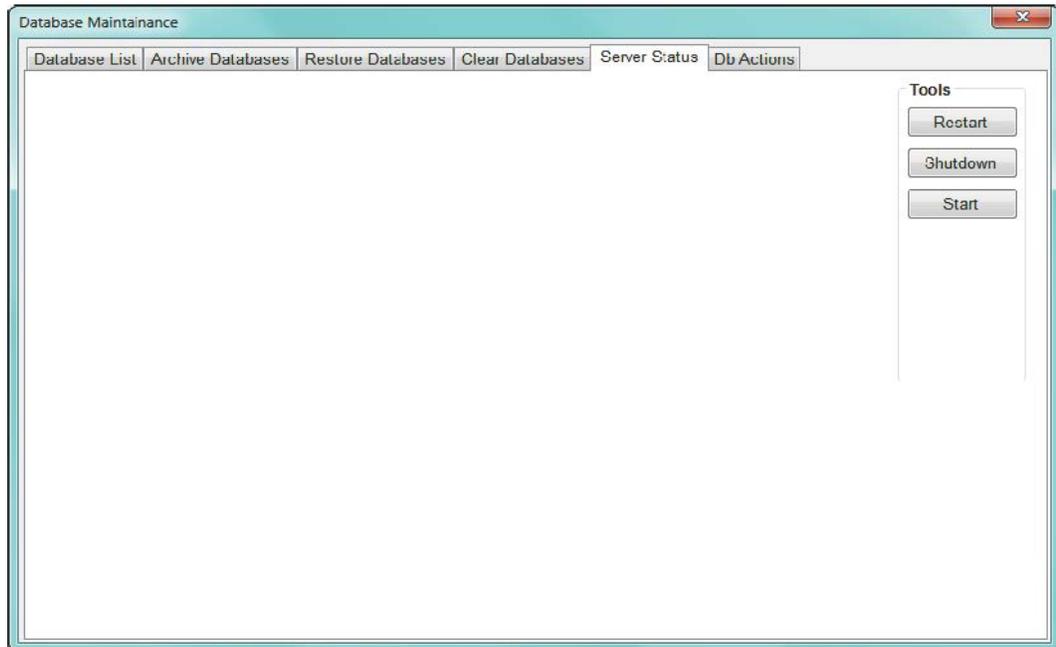
- From the Database Maintenance screen, click the **Clear Databases** tab.



- Click the **Delete Databases** button.

8.2.5 Server Status

1. From the **Database Maintenance** screen, click the **Server Status** tab.



2. You have three options:
 - **Restart:** click this button to start the local database server after it has been shut down.
 - **Shutdown:** click this button to close the local database server. You see a window that shows the progress of stopping the server, and then a window telling you that the software must be shutdown to finish stopping the server. Click **OK** to proceed with the shutdown.



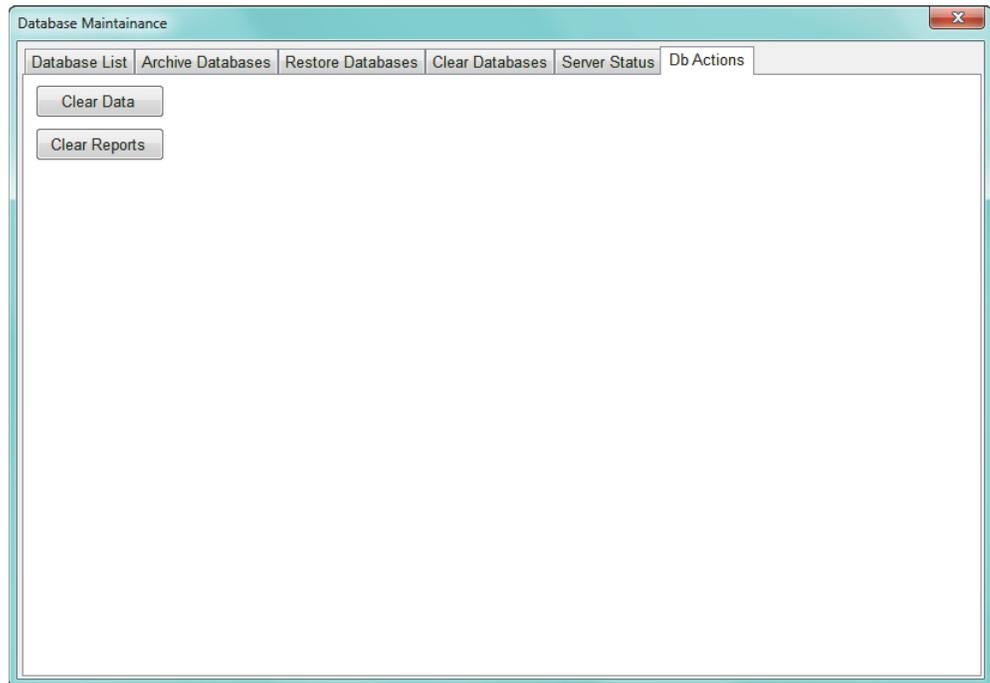
NOTE

The local database server does not close when you exit the GE Energy Aggregator application. You must use this command if you want to close it.

- **Start:** click this button to start the main Database server (not the local database server) if it is not opening correctly (it should open when the software starts).

8.2.6 Database Actions

1. From the **Database Maintenance** screen, click the **DB Actions** tab.

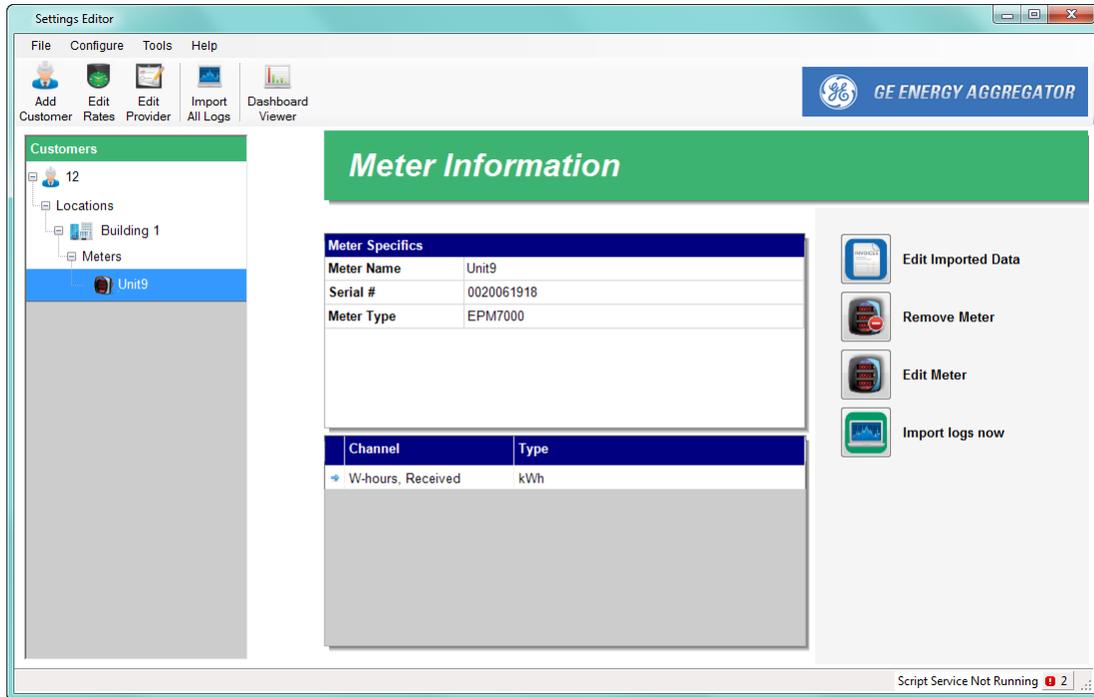


2. You have two options:
 - **Clear Data:** click this button to clear all meter data.
 - **Clear Reports:** click this option to clear all report data.

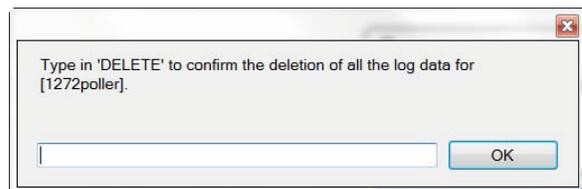
8.3 Clear Meter Data

The GE Energy Aggregator Settings Editor gives you the option to clear meter data. You may want to do this if you imported the incorrect data or corrupted data and want to remove it.

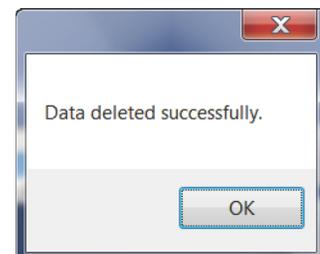
1. From the GE Energy Aggregator Settings Editor Location screen, highlight the meter whose data you want to clear. See the example screen below.



2. From the Menu bar, click **Tools > Database Maintenance > Clear Meter Data**.
3. You will see a window that prompts you to enter **DELETE**. See the example screen on the right. Type **DELETE** in the entry field and click **OK** to delete the meter data.

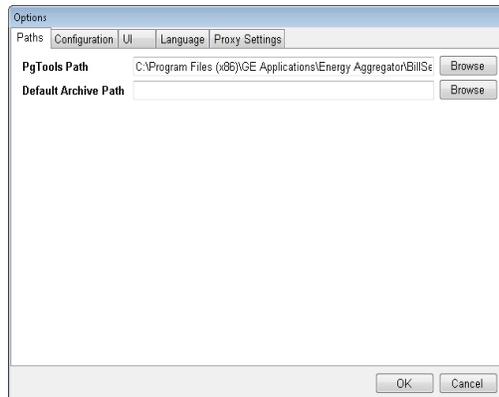


4. You will see the message window on the right. Click **OK** to close the message window.

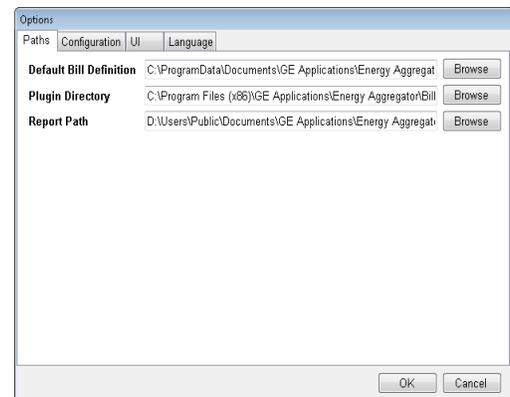


8.4 Option Screens

Both the GE Energy Aggregator Settings Editor and GE Energy Aggregator Dashboard Viewer have an Options screen. You access this screen by clicking **Tools > Options** from the main screen's Menu bar. The screen has four tabs for settings: Paths, Configuration, UI, and Language. The settings are the same on both screens, except for the Paths settings. See the screens below.



GE Energy Aggregator Settings Editor Options



GE Energy Aggregator Dashboard Viewer Options

8.4.1 Path Setting

GE Energy Aggregator Dashboard Viewer setting:

- **Default Bill Definition:** this is the template for the bills. Click **Browse** to set up another location.
- **Plug-in Directory:** not used at the current time.
- **Report Path:** this is the default location for all custom usage reports, bills, and executive summary reports. Click **Browse** to set up another location for all of the reports.

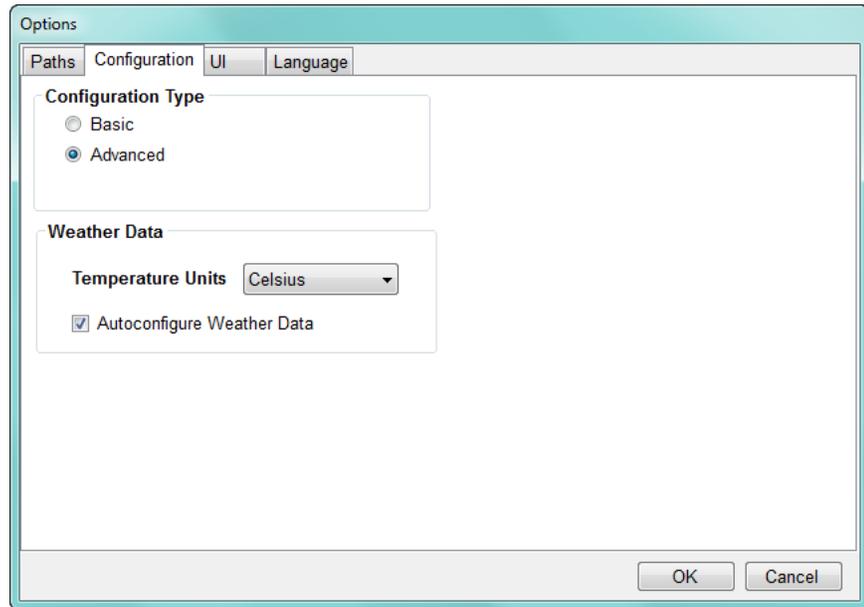
GE Energy Aggregator Settings Editor settings:

- **Pg Tools Path:** this is the path to the pg_tools exe, which is a utility used to archive, restore, and perform other maintenance operations on the database cluster. Click **Browse** to set up another location.
- **Default Archive Path:** this is the default location where the archive is stored when the database cluster is archived. Click **Browse** to select the location.

8.4.2 Configuration Setting

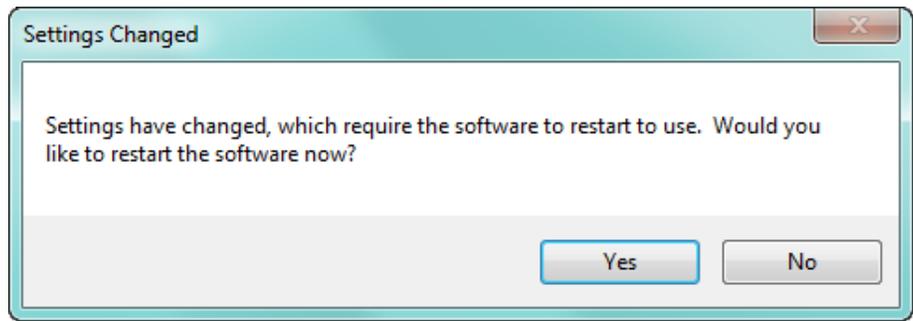
The settings are similar for the GE Energy Aggregator Dashboard Viewer and the GE Energy Aggregator Settings Editor. This setting controls what options are available to the user.

1. Click the **Configuration** tab. You will see the screen shown below from the GE Energy Aggregator Settings Editor. The Options screen from the GE Energy Aggregator Dashboard Viewer does not have the Autoconfigure Weather Data checkbox.



2. Click the radio button of the option you want to set:
 - **Basic** restricts access to functional billing tasks and provides a user friendly interface to configure settings.
 - **Advanced** provides access to all options, and should only be chosen for advanced users.
3. The **Weather Data** section lets you select **Celsius** or **Fahrenheit** from the pull-down menu.
4. The default Weather Data configuration is Auto-Configure. If you do not wish to automatically configure settings for weather data acquisition for new locations at the time they are first created, click on the **Autoconfigure Weather Data** button to disable this feature.

5. If you've made a change, when you click **OK** you will see this window.



6. Click **Yes** to restart the GE Energy Aggregator software now; click **No** if you don't want to restart the software.



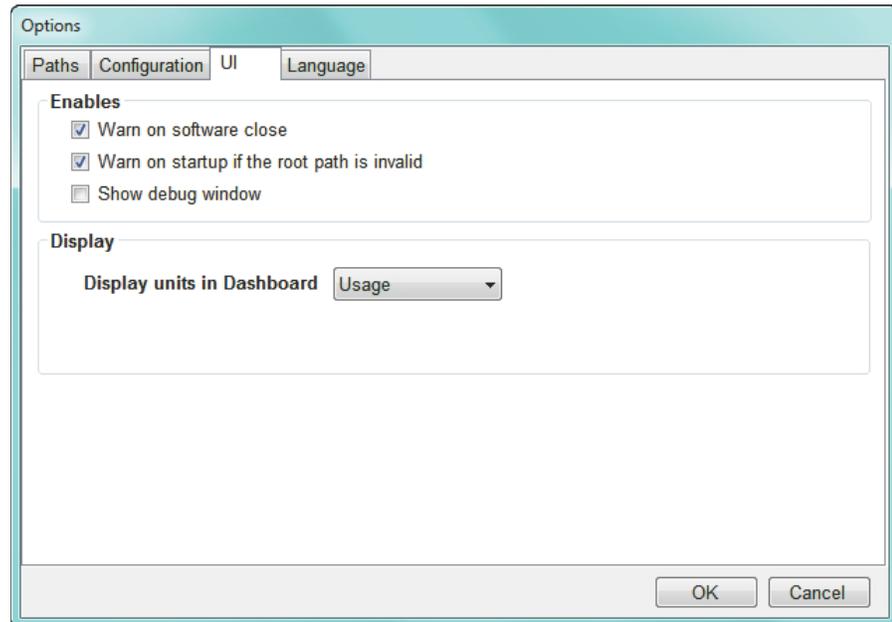
NOTE

Changes you make won't take effect until you restart the software.

8.4.3 UI (User Interface) Setting

Except for one setting, the GE Energy Aggregator Dashboard Viewer and GE Energy Aggregator Settings Editor Option screens have the same UI settings.

1. Click the **UI** tab. The screen shown below is from the GE Energy Aggregator Dashboard Viewer. The Options screen from the GE Energy Aggregator Settings Editor does not have Display option.

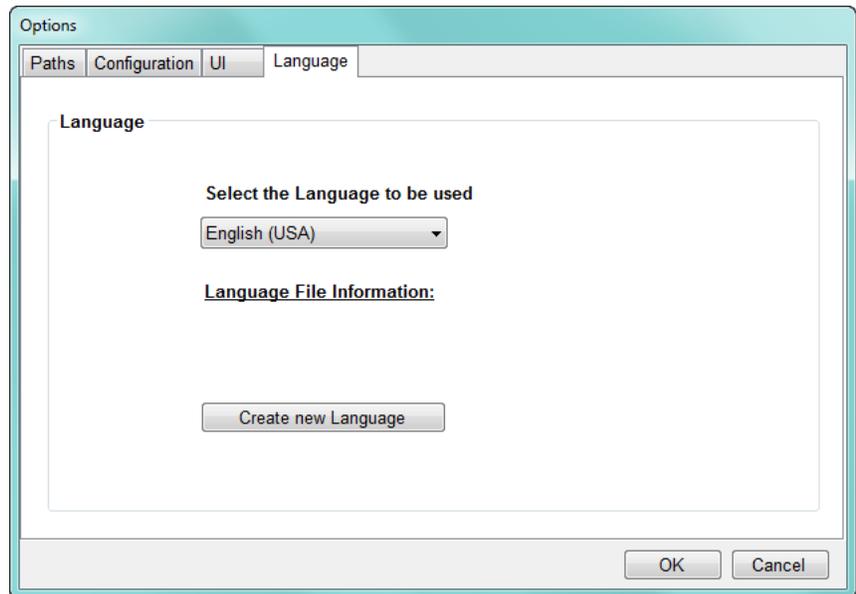


2. These are the setting options:
 - **Warn on software close:** this setting asks the user to confirm closing the software. The default of the setting is checked - selected. To un-select the setting click on the checkbox to remove the checkmark.
 - **Warn on startup if the root path is invalid:** this setting verifies that the database server has been configured correctly and is accessible. The default of the setting is checked - selected. To un-select the setting click on the checkbox to remove the checkmark (this is not recommended).
 - **Show debug window:** click the checkbox to show the debug trace window while the software is running.
 - **Display units in Dashboard** - select either **Usage** or **Demand**.
3. Click **OK** to close the screen and apply your settings.

8.4.4 Language

This feature allows you to select a translation of the software to use, as well as providing a tool that can be used to translate the software.

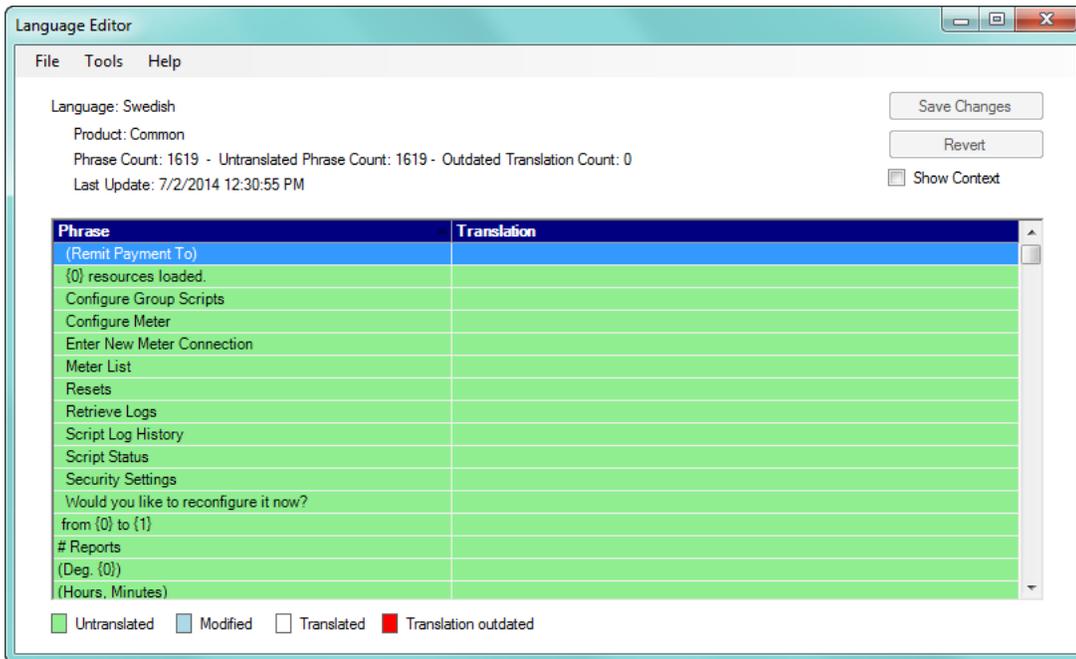
1. Click the **Language** tab from the GE Energy Aggregator Settings Editor or Dashboard Viewer Options screen.



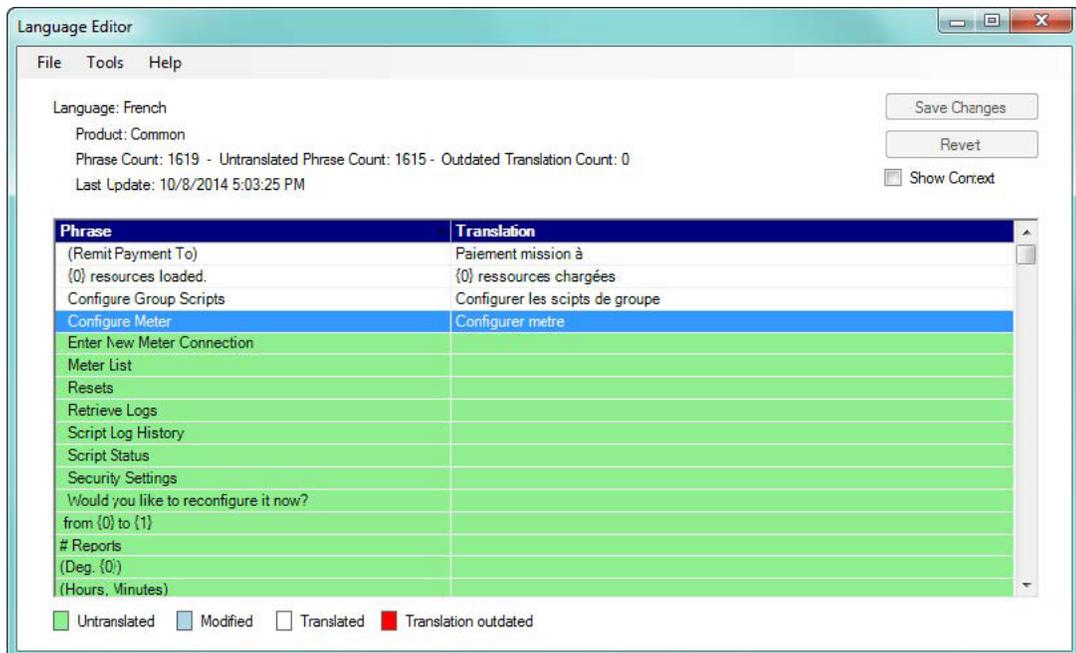
2. Select from the available languages from the pull-down menu. You can click **Language File Information** for details of the selected Language file.
3. To add a new translation, click the **Create New Language** button.



4. Enter the language name and click **OK**.



5. Use the screen shown above to enter the translations. You enter the translation in the Translation column for each term in the Phrase column. See the example screen below.



6. When you have finished entering the translations, click **Save Changes** to save the language file.

7. The Language screen is redisplayed. Select the language you want to use from the pull-down menu and click **OK**. You will see the following confirmation window.



8. Click **Yes**. The software will shut down. Open it again to display the translated application.

8.5 Performing Tasks Using Command Line

You can trigger an import of all meters or generate all bills from command line. This feature is used if you wish to launch the GE Energy Aggregator application from a third party application and have it run tasks. Using the command line, the GE Energy Aggregator application can be embedded, as a launch command, into any third party application.

8.5.1 Import Data Using Command Line

This can be useful for automating the importing of data. The command you use is as follows:

```
"[Path]\BillSettingsEditor.Master.exe" --script --import meter=all
```



NOTE

IMPORTANT!

- [Path] is the path to the application on your PC.
- You must include the quotation marks.

For example:

```
"C:\Program Files (x86)\GE Applications\Energy Aggregator\  
BillSettingsEditor\BillSettings Editor.Master.exe" --script --import meter=all
```

8.5.2 Generate All Bills Using Command Line

This can be useful for automating the generation of bills. Make sure this runs after all the data for the month has been imported. The command you use is as follows:

```
"[Path]\BillViewer\BillViewer.exe" --script --generate_bill
```



NOTE

IMPORTANT!

- [Path] is the path to the application on your PC.
- You must include the quotation marks.

For example:

```
"C:\Program Files (x86)\GE Applications\Energy Aggregator\  
BillViewer\BillViewer.exe" --script --generate_bill
```

8.6 Remote Access

In order to help secure your data, GE Energy Aggregator by default, does not allow remote access to the server. If you have a need to access the GE Energy Aggregator data from a remote computer, you can enable remote access. To do so:

1. From the **Settings Editor**, click **Tools > Database Maintenance > Remote Access > Enable Remote Access** - note that this action requires admin rights. An exception is created in the Windows Firewall and connections from other computers will be accepted by the GE Energy Aggregator Data Server.
2. To disable remote access, click **Tools > Database Maintenance > Remote Access > Disable Remote Access** - note that this action also requires admin rights. Connections from other computers will no longer be accepted by the GE Energy Aggregator Data Server.

GE Energy Aggregator

A: Sample Usage Summary Report

Figure A-1: Description of the Report Data

GE- Engineering
August, 2014 - Usage Summary Report



Usage Summary Report for GE- Engineering – August 2014

This report provides a summary of the kWh usage for GE- Engineering from Friday, August 01, 2014 to Sunday, August 31, 2014. This report was generated on Tuesday, October 07, 2014.

Meter Report

Each meter report contains 6 sub-reports:

1. **Month Usage**
Summarizes the usage of the meter over the course of August 2014, from 08/01/2014 00:00:00 to 08/31/2014 23:59:00. All values presented are the computed 15 minute interval values of the recorded commodity (kWh), summed over the specified interval. 4 values are presented:
 - a. Total Usage – The sum of all the 15 minute interval values over the period of the report.
 - b. Peak Usage – The peak 15 minute interval value over the period of the report.
 - c. Month Usage – A graph of the summed usage of each day during the period of the report.
 - d. Month Trend – A trend graph of the 15 minute interval values during the period of the report.
2. **Peak Week Usage**
Summarizes the usage of the meter over the course of the peak week during August 2014. The peak week is defined as the week containing the peak day. All values presented are the computed 15 minute interval values of the recorded commodity (kWh), summed over the specified interval. 4 values are presented:
 - a. Total Usage – The sum of all the 15 minute interval values over the period of the peak week.
 - b. Peak Usage – The peak 15 minute interval value over the period of the peak week.
 - c. Usage over the Week – A graph of the summed usage of each day during the peak week.
 - d. Trend over the Week – A trend graph of the 15 minute interval values during the peak week.
3. **Peak Day Usage**
Summarizes the usage of the meter over the course of the peak day during August 2014. The peak day is defined as the day which has the highest total usage. All values presented are the computed 15 minute interval values of the recorded commodity (kWh), summed over the specified interval. 3 values are presented:
 - a. Total Usage – The sum of all the 15 minute interval values during the peak day.
 - b. Peak Usage – The peak 15 minute interval value during the peak day.
 - c. Usage over the Day – A graph of the 15 minute interval values during the peak day.
4. **Average Hourly and Daily Usage**
Displays the average usage over the course of the month, averaged by hour, and by weekday. The highest and lowest usage for each hour and weekday over the course of the month are determined, and displayed as the bounding lines in Red and Green.
5. **Comparison to previous Month and Year**
Displays a comparison of daily usage between this month and last month, and this month this year and this month last year. The daily usage is lined up by week day for each month. The numbers at the bottom indicate what day in the month each bar represents: The top value is the current month, the bottom value the month being compared against.
6. **Monthly Usage and Temperature**
Displays a comparison of monthly usage and temperature. The highest and lowest temperature for each day over the course of the month are determined, and displayed as the bounding lines in Red and Green.

Figure A-2: Monthly usage summary - aggregated meter, building, all individual meters

GE- Engineering
August, 2014 - Usage Summary Report



Monthly Usage Summary

Customer GE- Engineering
Month Date 08/01/2014 to 08/31/2014
Commodity kWh

Figure	Meter Location	Meter Name	Meter Type	Meter Serial	Total Usage	Peak Usage	Peak Demand
1	Main Building	Aggregated Meter	Aggregated Meter		17731	14	57
2	Main Building	123 Main Street	EPM7000	0123995130	17345	14	56
3	Main Building	Cubicle 1	EPM7000	0145324120	71	0	0
4	Main Building	Cubicle 2	EPM7000	0126370221	50	0	0
5	Main Building	Cubicle 3	EPM7000	0145324019	55	0	0
6	Main Building	Cubicle 4	EPM7000	0145324423	69	0	0
7	Main Building	Cubicle 5	EPM7000	0145324524	9	0	0
8	Main Building	Cubicle 6	EPM7000	0145282931	98	0	1
9	Main Building	Cubicle 7	EPM7000	0145324221	35	0	0

Figure A-3: Highest usage comparison for the building and each meter

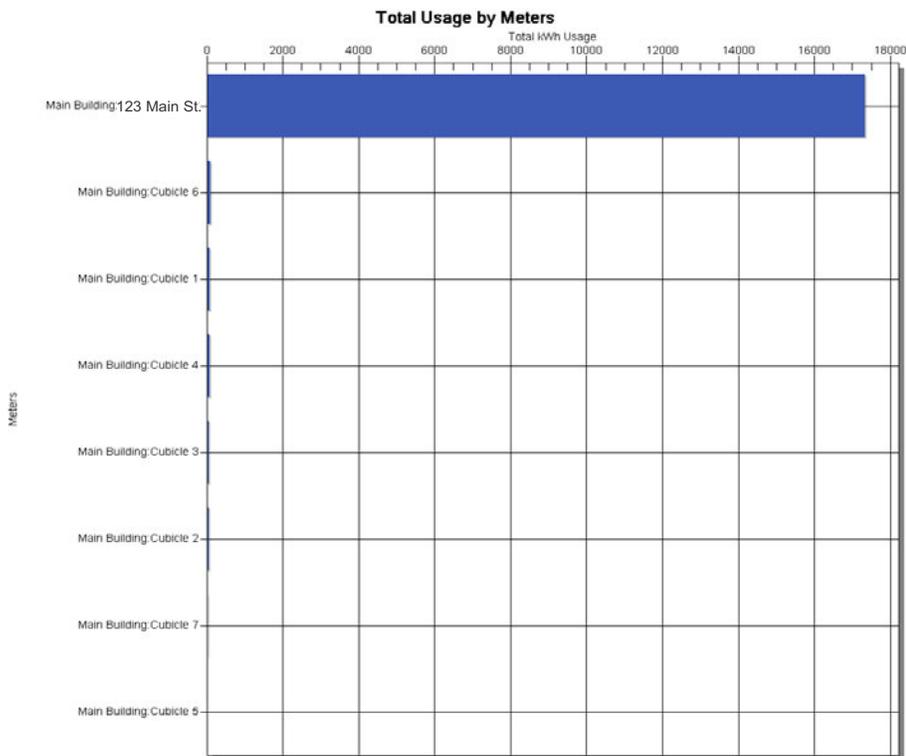
A: Sample Usage Summary Report

*E- Engineering
August, 2014 - Usage Summary Report



Highest Usage Meter Comparison

Customer	*E- Engineering
Commodity	kWh
Highest Usage Meter	Main Building:1800ShamesDr @ 17345
Lowest Usage Meter	Main Building:Cubicle 5 @ 9
Top Usage Meters	



Highest usage comparison for the building and each meter

Figure A-4: Monthly usage for aggregated meter and all individual meters

GE- Engineering
 August, 2014 - Usage Summary Report



Monthly Usage at a Glance

Customer GE- Engineering
 Month Date 08/01/2014 to 08/31/2014
 Commodity kWh

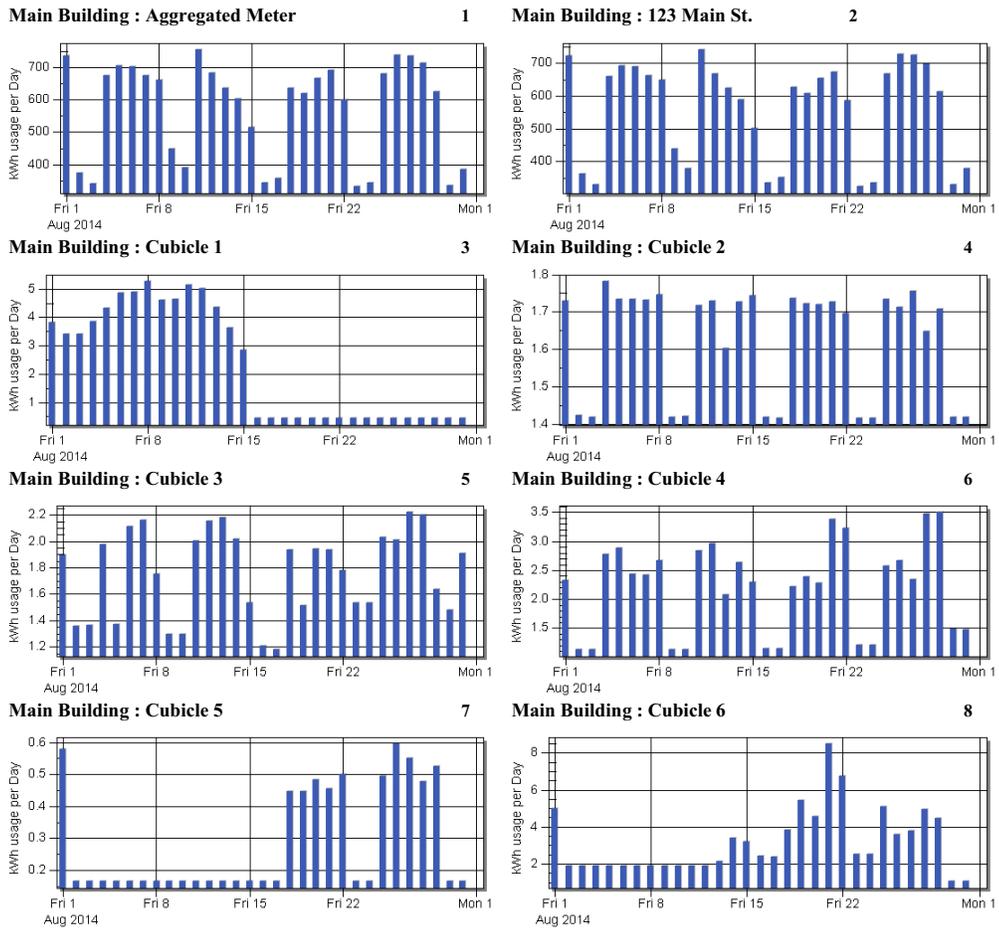


Figure A-5: Aggregated meter total usage during month

GE- Engineering
August, 2014 - Usage Summary Report



Main Building : Aggregated Meter

Total Usage during Month
08/01/2014 to 08/31/2014

Total Usage	17731
Peak Usage	14
Peak Demand	57

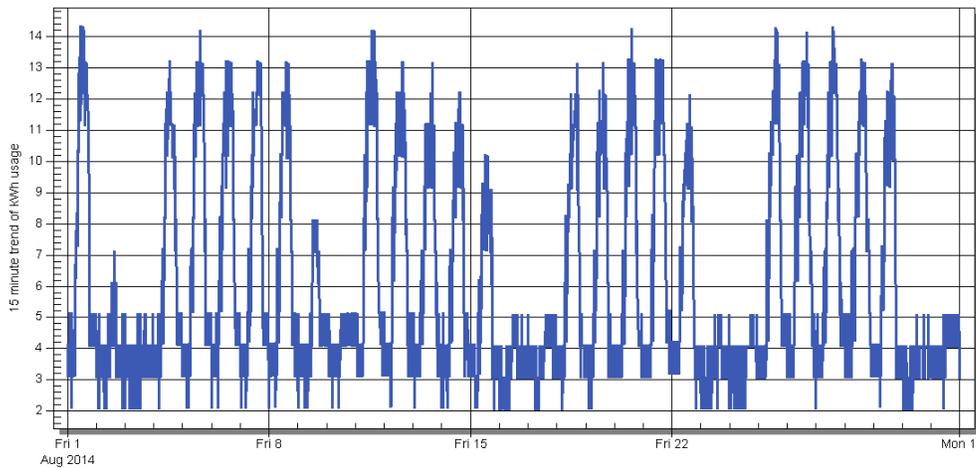
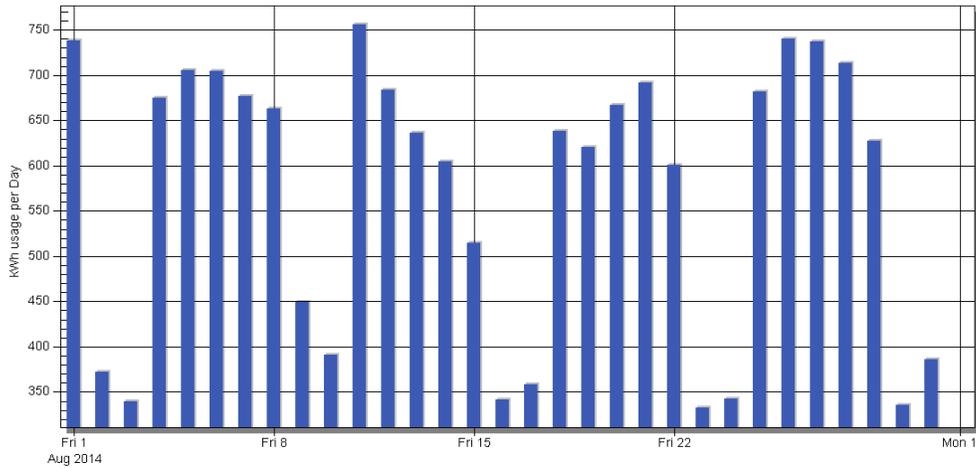


Figure A-6: Aggregated meter total usage during peak week

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Aggregated Meter

Total Usage during Peak Week

08/10/2014 to 08/16/2014

Total Usage 3929
 Peak Usage 14

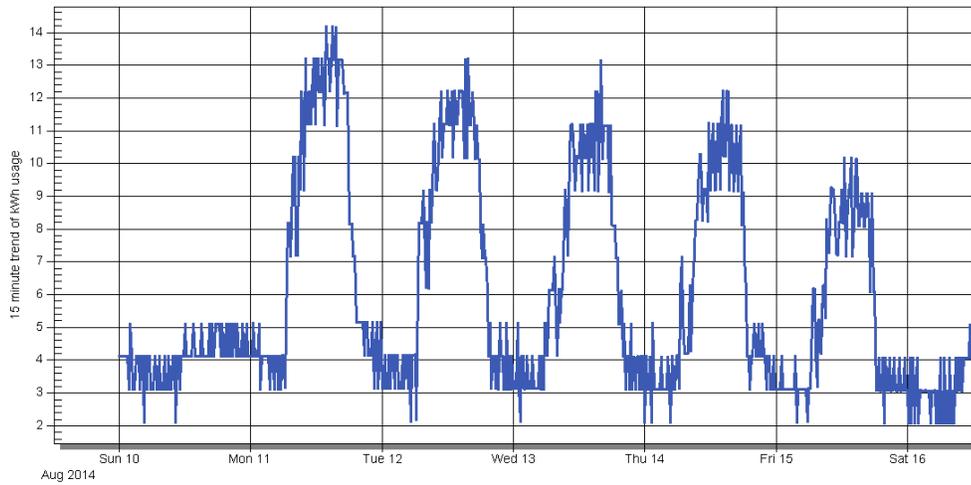
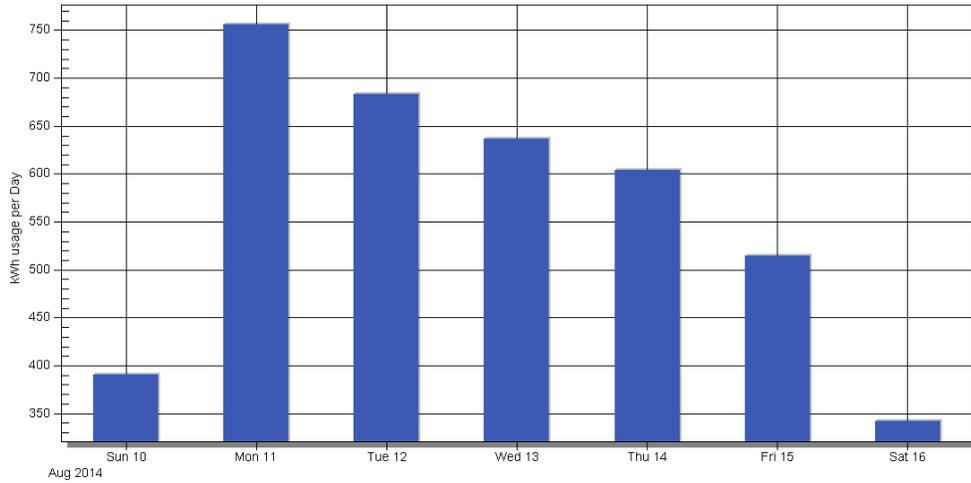


Figure A-7: Aggregated meter total usage during peak day

GE- Engineering
August, 2014 - Usage Summary Report



Main Building : Aggregated Meter

Total Usage during Peak Day

Monday, August 11, 2014

Total Usage	756
Peak Usage	14

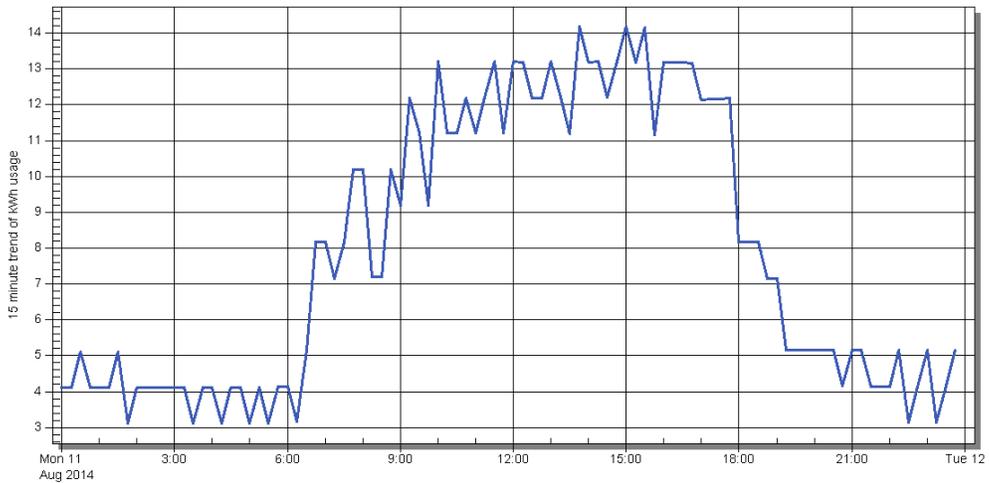
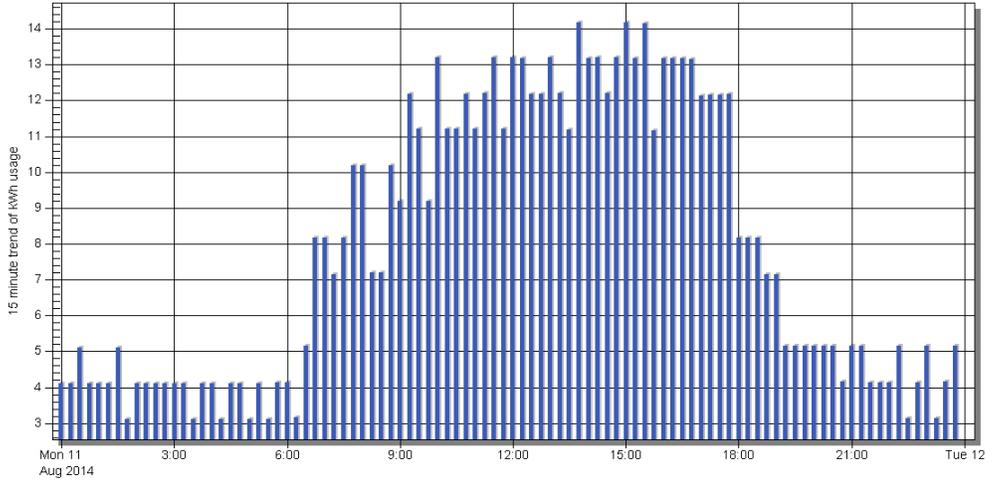


Figure A-8: Aggregated meter average hourly and daily usage

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Aggregated Meter

Average Hourly and Daily Usage

Displays the average usage over the course of the month, averaged by hour, and by weekday. The highest and lowest usage for each hour and weekday over the course of the month are determined, and displayed as the bounding lines in Red and Green.

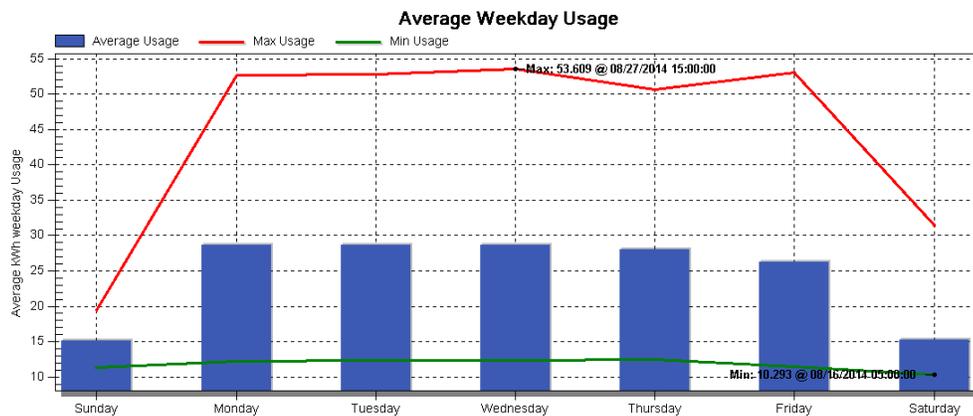
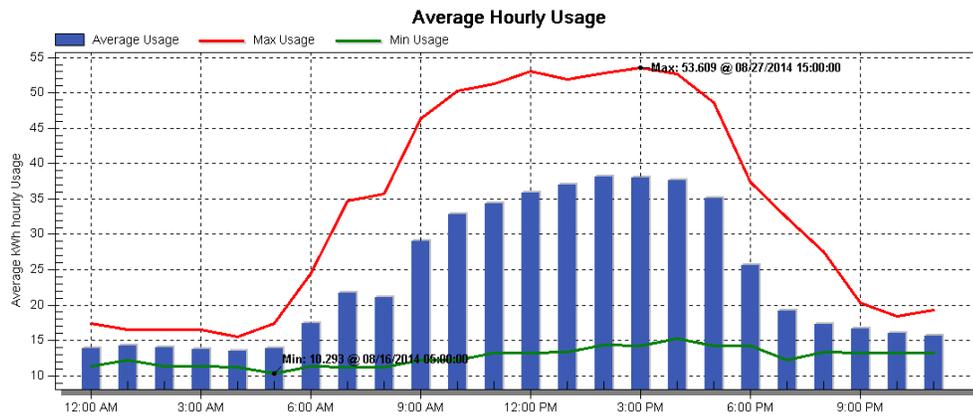


Figure A-9: Aggregated meter usage comparison to previous month and year

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Aggregated Meter

Comparison to previous Month and Year

Displays a comparison of daily usage between this month and last month, and this month this year and this month last year. The daily usage is lined up by week day for each month. The numbers at the bottom indicate what day in the month each bar represents: The top value is the current month, the bottom value the month being compared against.

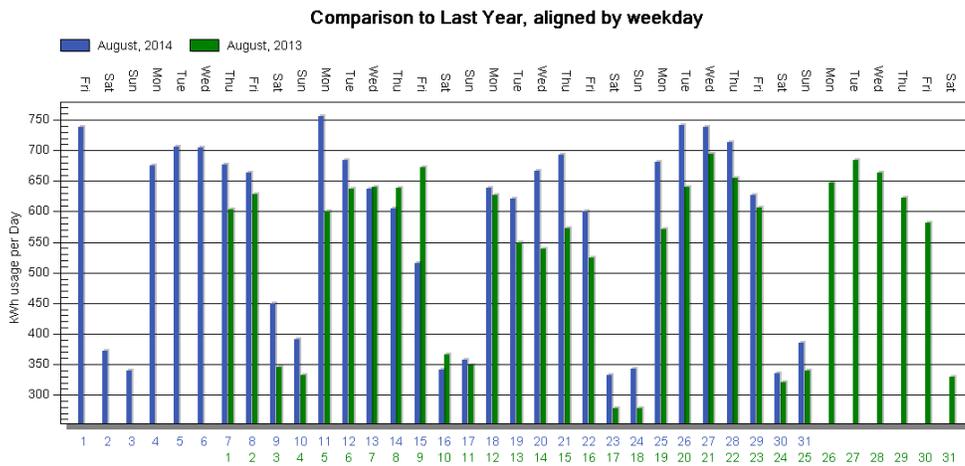
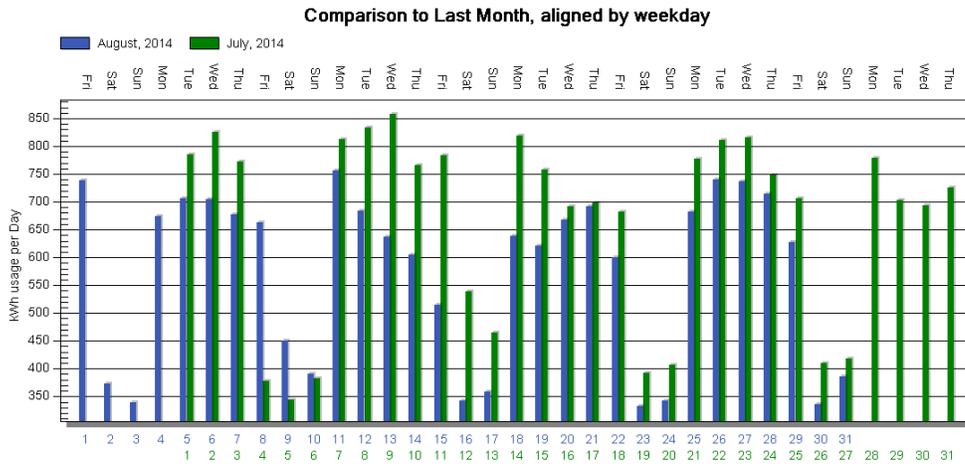


Figure A-10: Aggregated meter monthly usage compared to temperature

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Aggregated Meter

Monthly Usage and Temperature

Displays a comparison of monthly usage and temperature. The highest and lowest temperature for each day over the course of the month are determined, and displayed as the bounding lines in Red and Green.

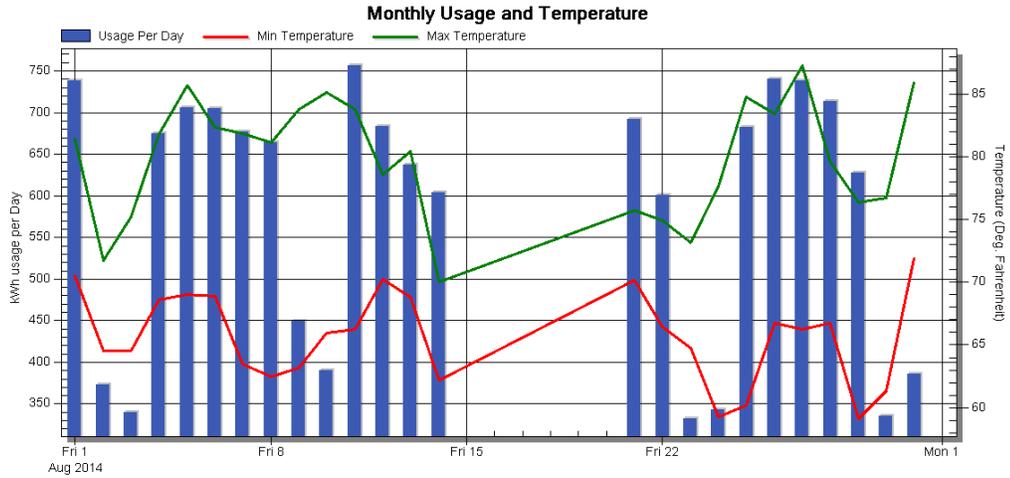


Figure A-11: Main building total usage during month

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : 123 Main St.

Total Usage during Month
 08/01/2014 to 08/31/2014

Total Usage	17345
Peak Usage	14
Peak Demand	56

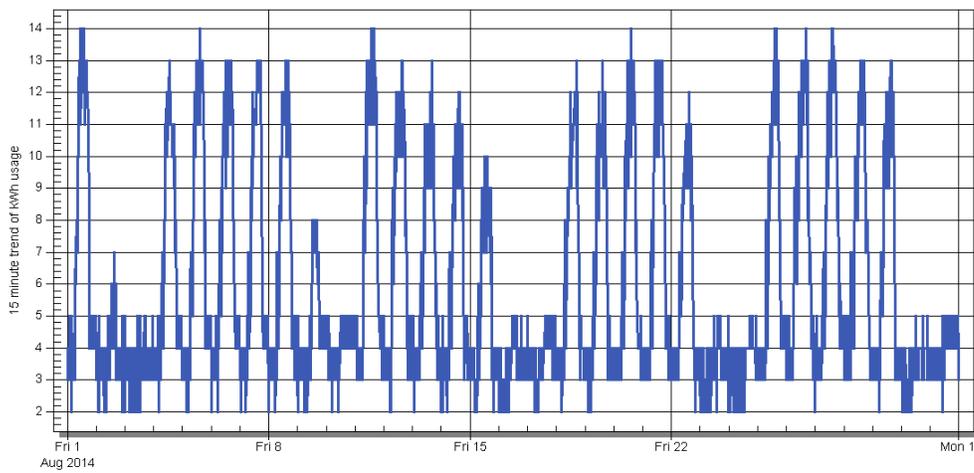
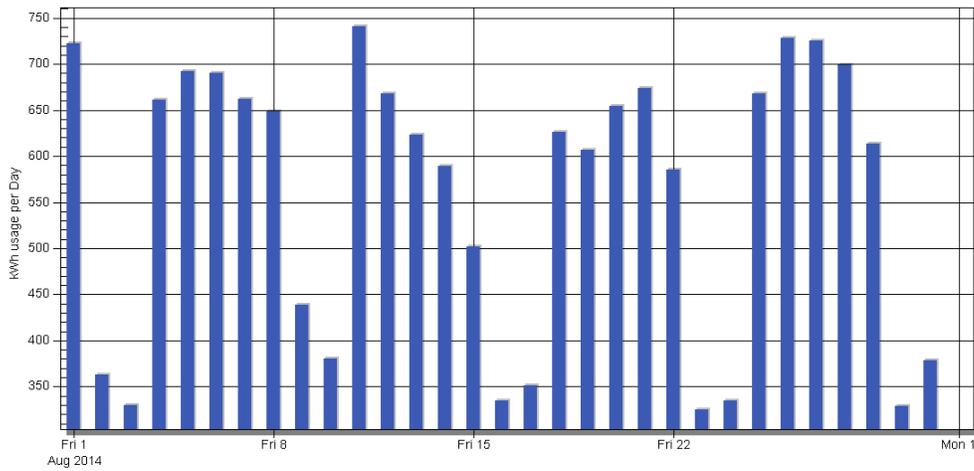


Figure A-12: Main building total usage during Peak week

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : 123 Main St.

Total Usage during Peak Week

08/10/2014 to 08/16/2014

Total Usage 3838
 Peak Usage 14

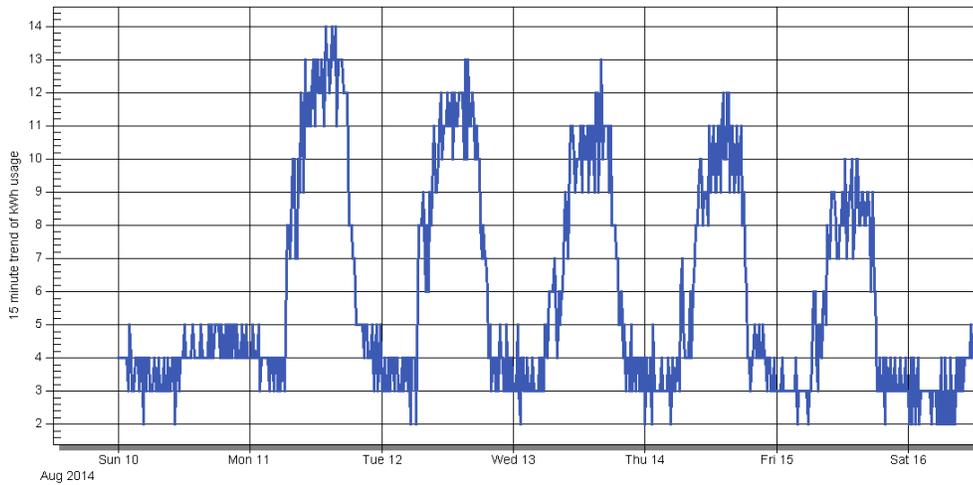
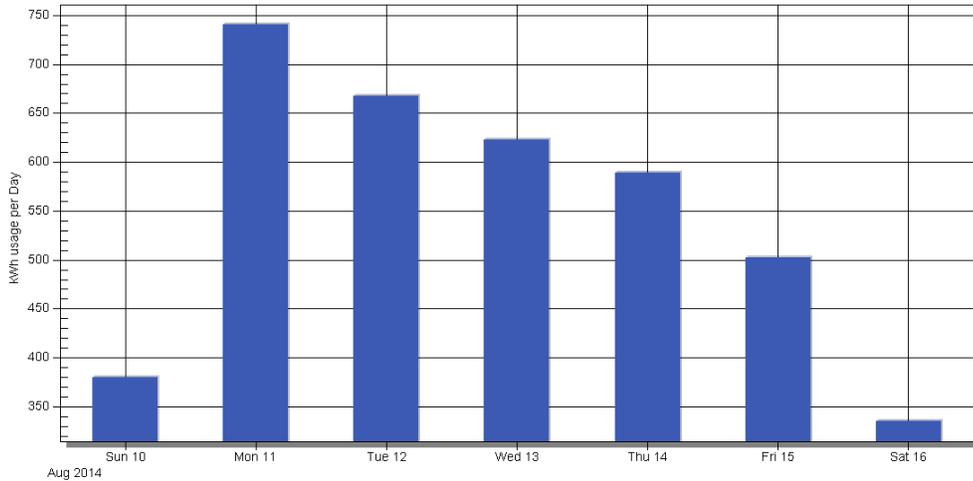


Figure A-13: Main building total usage during Peak day

GE- Engineering
August, 2014 - Usage Summary Report



Main Building : 123 Main St.

Total Usage during Peak Day
Monday, August 11, 2014

Total Usage 741
Peak Usage 14

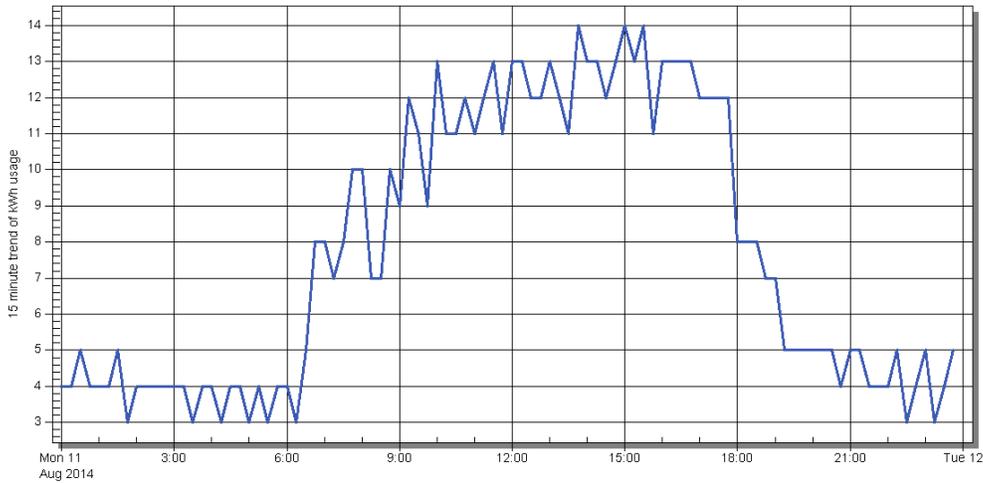
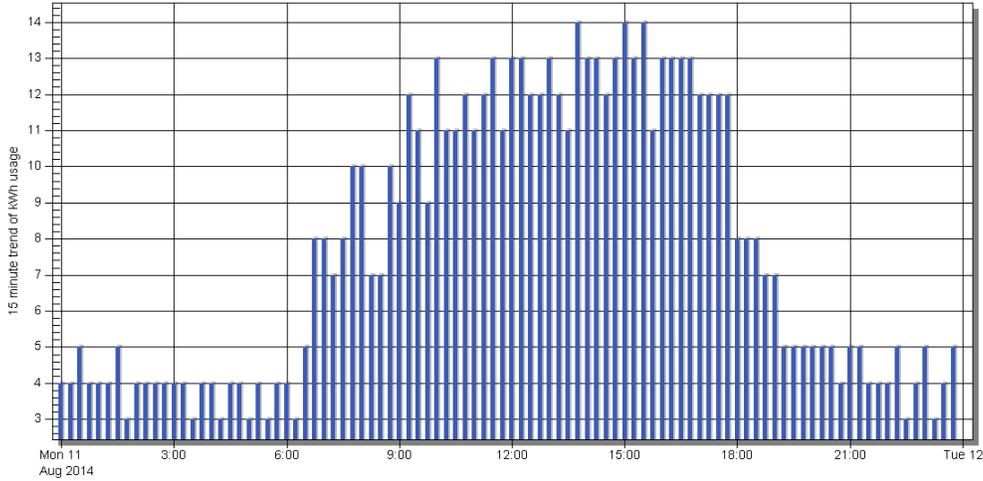


Figure A-14: Main building average hourly and daily usage

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : 123 Main St.

Average Hourly and Daily Usage

Displays the average usage over the course of the month, averaged by hour, and by weekday. The highest and lowest usage for each hour and weekday over the course of the month are determined, and displayed as the bounding lines in Red and Green.

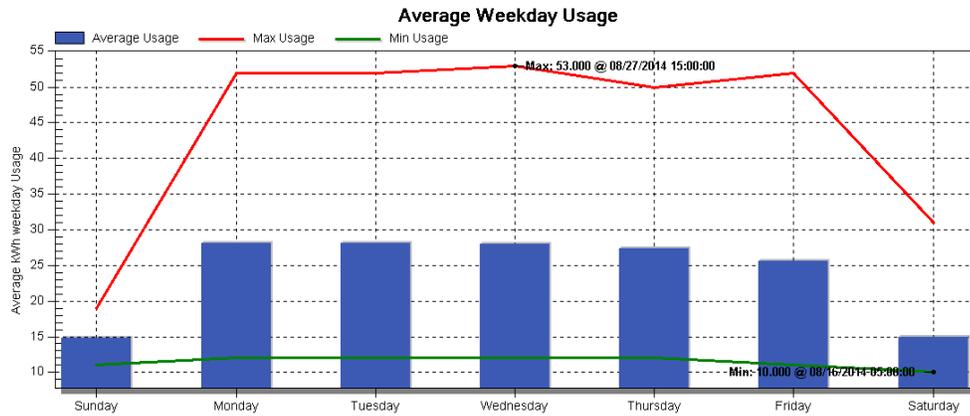
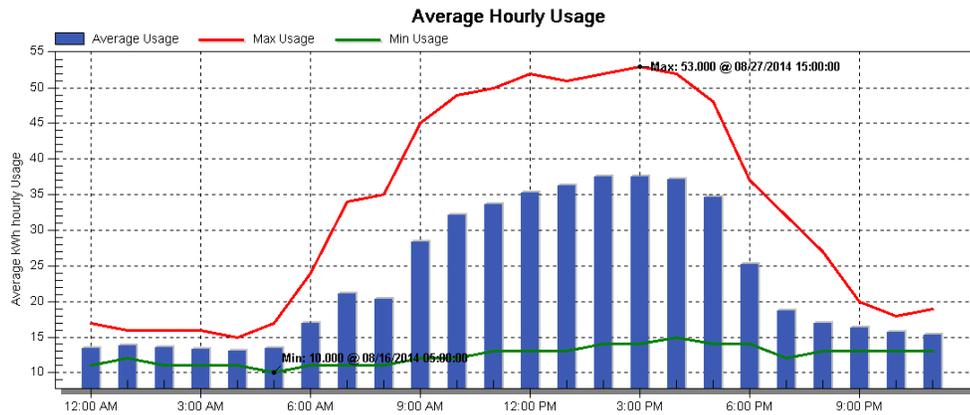


Figure A-15: Main building comparison to previous month and year

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : 123 Main St.

Comparison to previous Month and Year

Displays a comparison of daily usage between this month and last month, and this month this year and this month last year. The daily usage is lined up by week day for each month. The numbers at the bottom indicate what day in the month each bar represents: The top value is the current month, the bottom value the month being compared against.

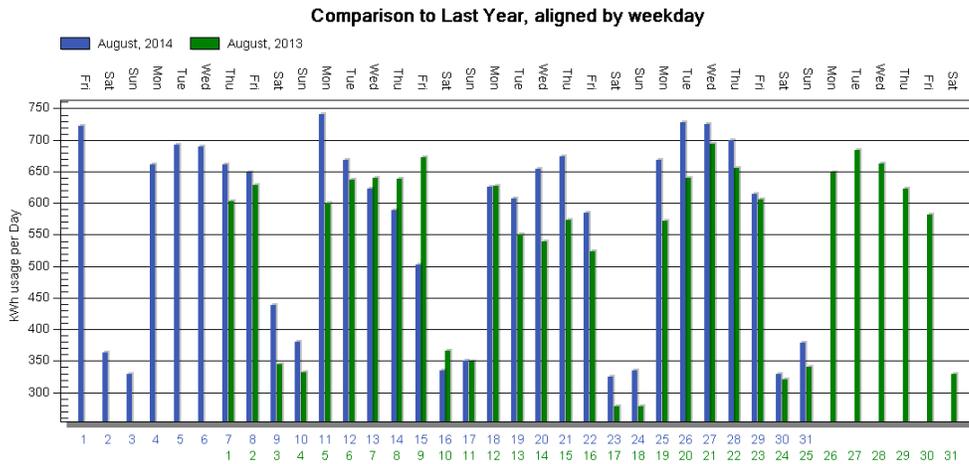
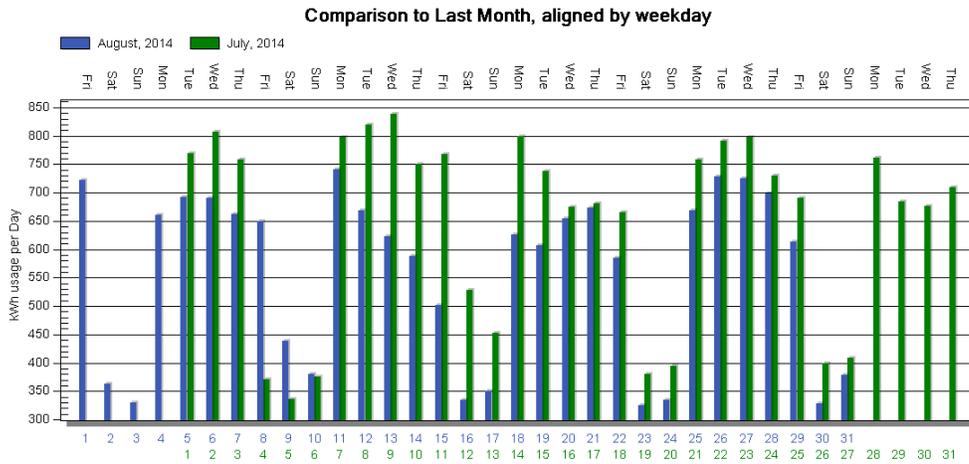


Figure A-16: Main building monthly usage compared to temperature

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : 122 Main St.
 Monthly Usage and Temperature

Displays a comparison of monthly usage and temperature. The highest and lowest temperature for each day over the course of the month are determined, and displayed as the bounding lines in Red and Green.

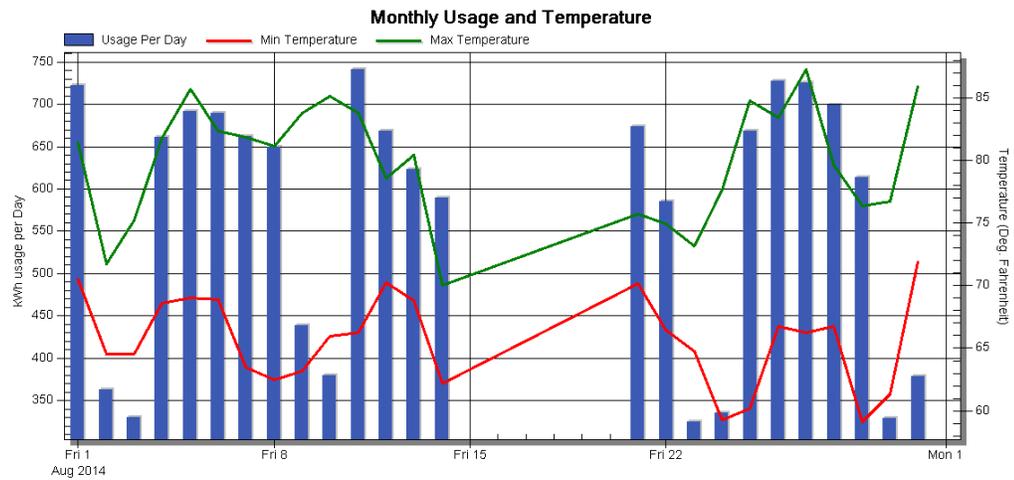


Figure A-17: Meter 1 total usage during month

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Cubicle 1

Total Usage during Month
 08/01/2014 to 08/31/2014

Total Usage	71
Peak Usage	0
Peak Demand	0

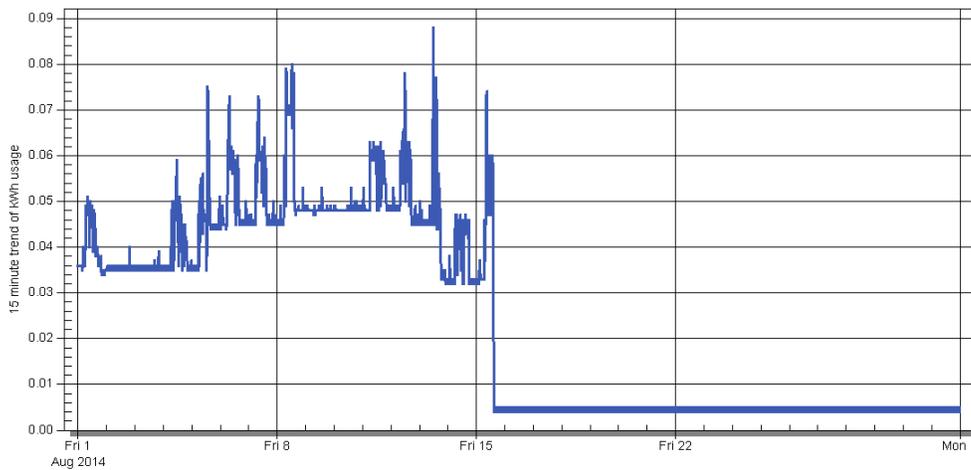
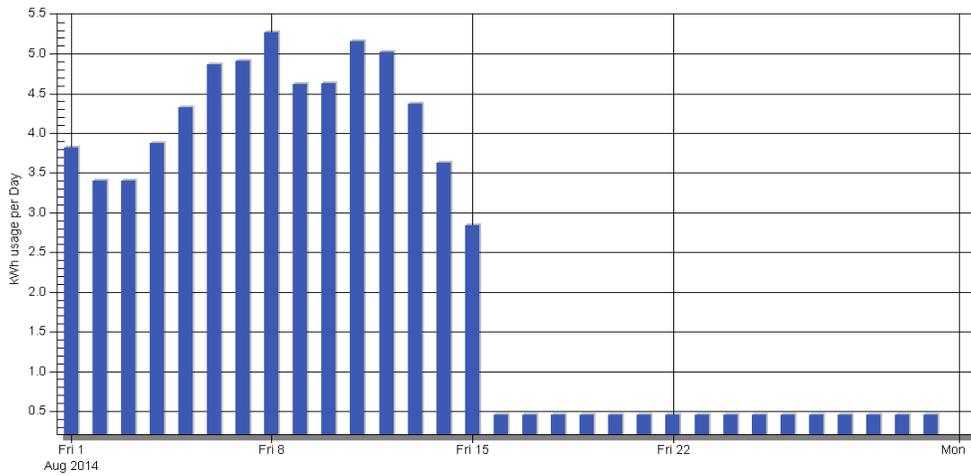


Figure A-18: Meter 1 total usage during peak week

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Cubicle 1

Total Usage during Peak Week
 08/03/2014 to 08/09/2014

Total Usage	31
Peak Usage	0

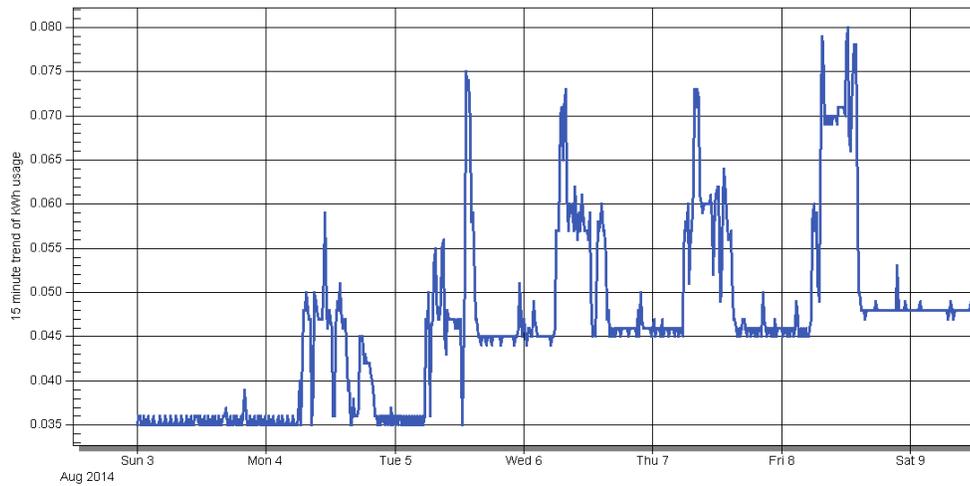
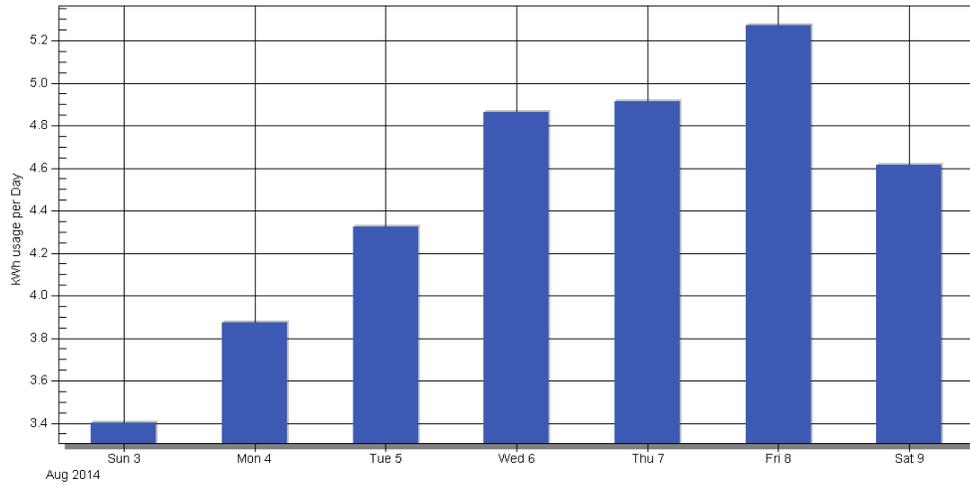


Figure A-19: Meter 1 total usage during peak day

GE- Engineering
August, 2014 - Usage Summary Report



Main Building : Cubicle 1

Total Usage during Peak Day

Friday, August 08, 2014

Total Usage	5
Peak Usage	0

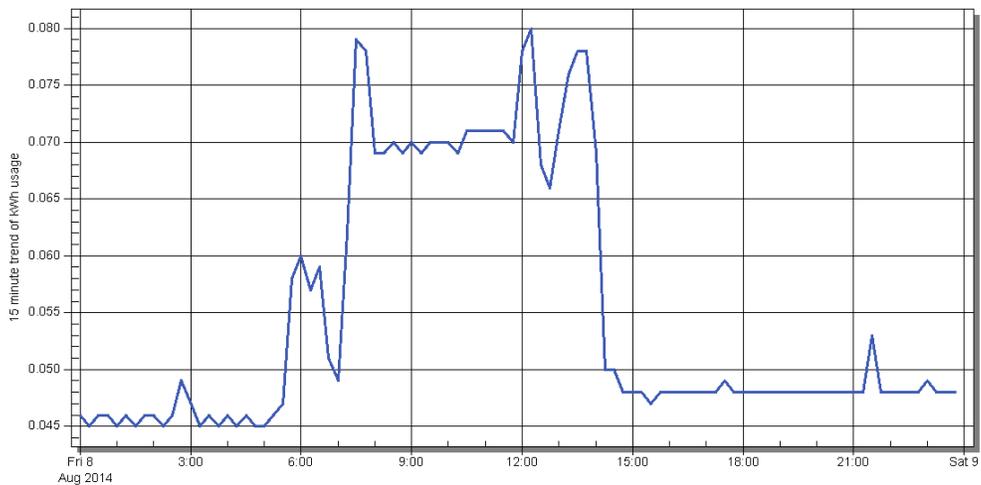
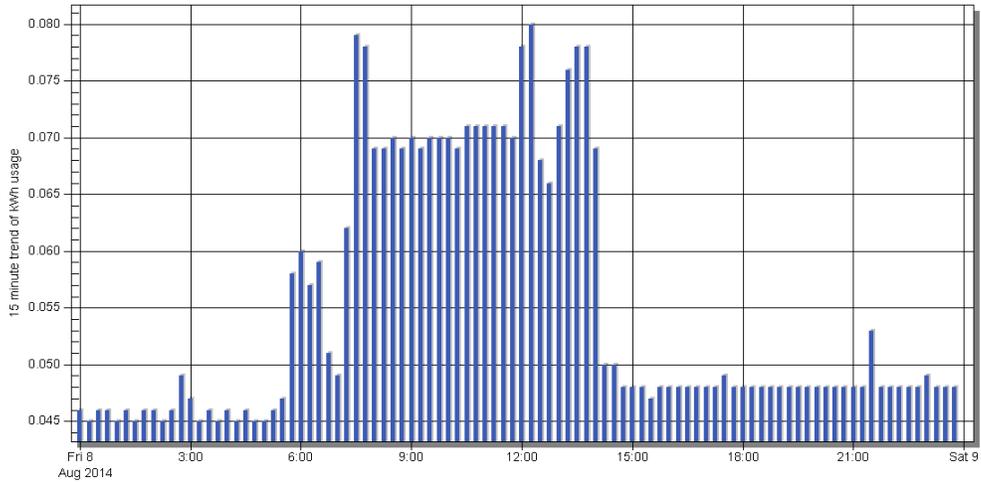


Figure A-20: Meter 1 average hourly and daily usage

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Cubicle 1

Average Hourly and Daily Usage

Displays the average usage over the course of the month, averaged by hour, and by weekday. The highest and lowest usage for each hour and weekday over the course of the month are determined, and displayed as the bounding lines in Red and Green.

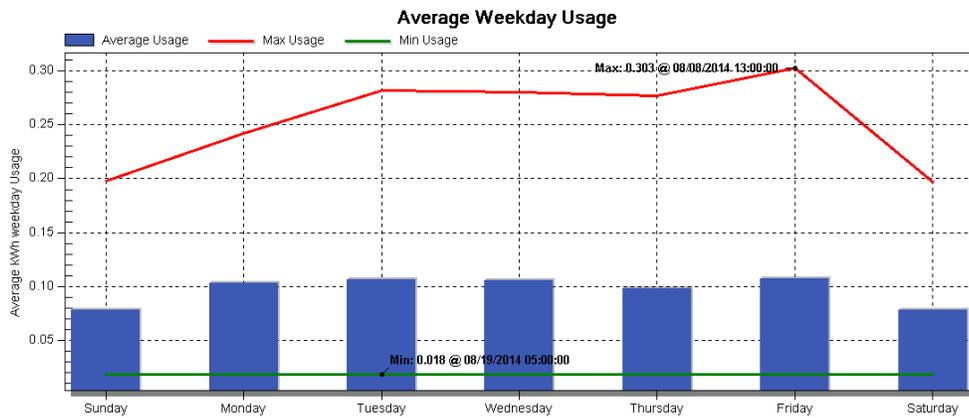
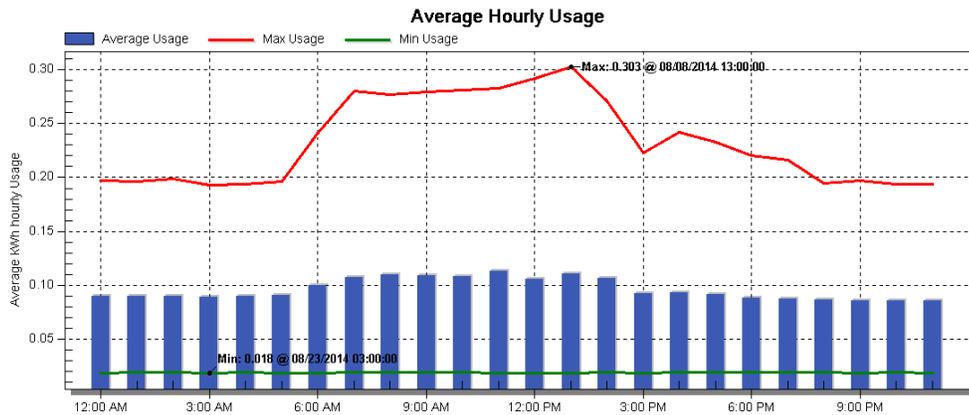


Figure A-21: Meter 1 usage comparison to previous month and year

GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Cubicle 1

Comparison to previous Month and Year

Displays a comparison of daily usage between this month and last month, and this month this year and this month last year. The daily usage is lined up by week day for each month. The numbers at the bottom indicate what day in the month each bar represents: The top value is the current month, the bottom value the month being compared against.

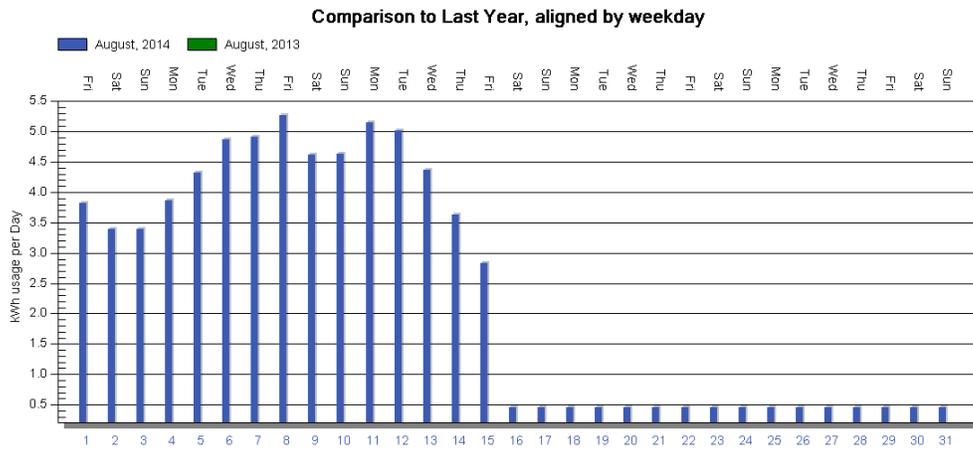
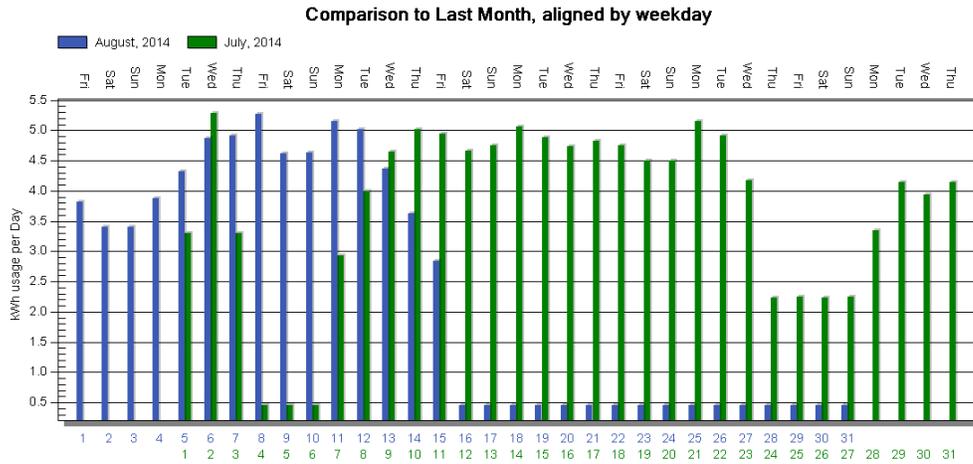


Figure A-22: Meter 1 monthly usage compared to temperature

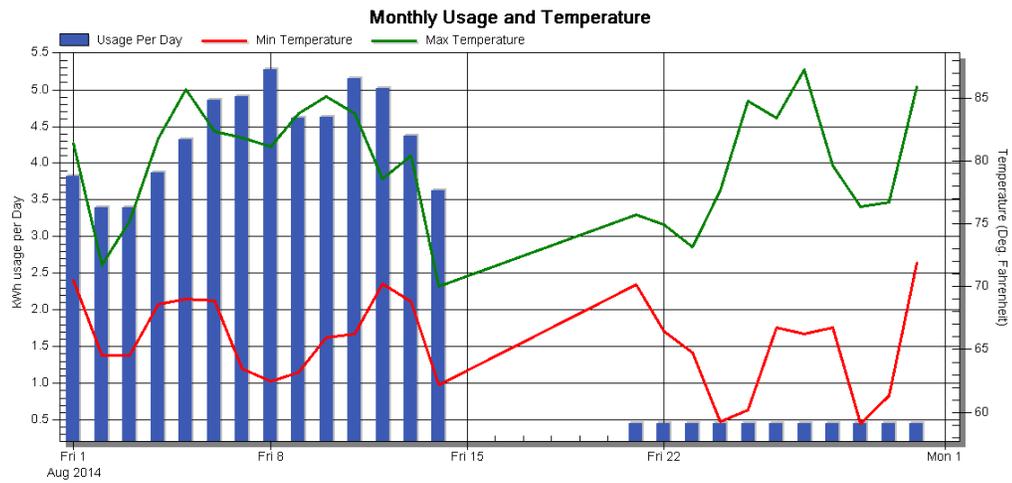
GE- Engineering
 August, 2014 - Usage Summary Report



Main Building : Cubicle 1

Monthly Usage and Temperature

Displays a comparison of monthly usage and temperature. The highest and lowest temperature for each day over the course of the month are determined, and displayed as the bounding lines in Red and Green.



GE Energy Aggregator

Glossary

<pg_data>

The data directory for the PostGreSql database cluster for the GE Energy Aggregator application. This is the “<Common Application Data>\GE Applications\Server\PostGreSql\9.5\Data” directory.

For Windows® 7: This is typically “C:\ProgramData\GE Applications\Server\PostGreSql\9.5\Data”.

<pg_exe>

The directory which contains the PostGreSql Database Server executable. This is typically “<Program Files>\GE Applications\Server\PostgreSQL\9.5”.

GE Communicator Application

The software application that is the main component of GE’s energy management software suite. It is a complete energy management application for configuring EPM meters, viewing real time readings remotely, trending data, retrieving and viewing logs, viewing and analyzing power quality information, and performing forensic engineering analysis. The data used by GE Energy Aggregator to analyze usage is provided by the GE Communicator application.

GE Energy Aggregator Settings Editor

The GE Energy Aggregator software for administering the Billing Package, including location configuration, data import, rate configuration, and modifying data values.

Bill Structure

Another name for Rate Structure.

GE Energy Aggregator Dashboard Viewer

The GE Energy Aggregator software for generating bills, viewing bills, and trending the data values.

Billing Database

The internal storage on the database cluster which holds all the data imported from the meters.

Channel

A single type of data item, such as kWh or pulses.

Charge

A monetary value applied to the bill, outside of the normal usage. This includes things such as a peak demand charge, credits, and taxes.

Commodity

A type of channel (typically from Energy or accumulations) which is a usage value the software uses when computing the rates for a bill.

Customer

The person or organization which is receiving the bill. A customer may have multiple locations, each of which gets its own bill.

Database Cluster

The collection of databases which the Database Server provides access to. A database server may provide access to multiple database clusters.

Database Server

The combination of computer and process that provides the interface to the database cluster (currently PostGreSql 9.5).

GE Energy Aggregator

The package of software which includes GE Energy Aggregator Settings Editor, GE Energy Aggregator Dashboard Viewer, and the Database Server.

Import Location

The actual source of the data imported for the meter. This is typically a log file, such as a GE Communicator .db log file. This file is scanned when imported, and new data is placed into the billing database.

Location

A single unit for which a bill is generated. Each location may have its own set of meters and rate structures.

Meter

A data monitoring unit, which acts as an import point for collecting usage data. Each meter may have multiple channels, but only one channel can be assigned to a commodity at a time. When multiple meters are at a single location, the matching usage values are aggregated when generating the bill.

GE MeterManager

A software application that works within the GE Communicator application to handle and automate tasks for meters, simplifying meter management, especially for large meter installations. The GE MeterManager application also automates the Log Retrieval which is necessary to build the database for the GE Energy Aggregator application's usage reports and billing.

Off-Peak/On-Peak

Used for utility billing purposes, Off-Peak and On-Peak are designations applied to different times of the day so that utilities can bill at higher rates for times when energy is more expensive to produce. The GE Energy Aggregator application allows you to assign On-Peak and Off-Peak to different times of the day, for each season in a rate structure.

Provider

The person or organization which is providing the energy, sending the bill, and receiving payments.

Rate

The monetary value applied to the usage which occurs during specific periods.

Rate Structure

The collection of settings which determine what rates to apply to the usage values for a commodity. Includes calendar rates (such as on peak and off peak), holidays, and other charges.

Seasons

In the GE Energy Aggregator application, Seasons are periods of time in a calendar year to which different rates can be applied, e.g., Summer and Winter. Up to four seasons can be created in a rate structure.

Software License Key

An alphanumeric sequence of characters that is typically used to enable software upgrades or installation. In the EnergyReporter EXT™ application, the software license key is used to enable full use of the application.

