

TED 5000 FOOTPRINTS

User Manual

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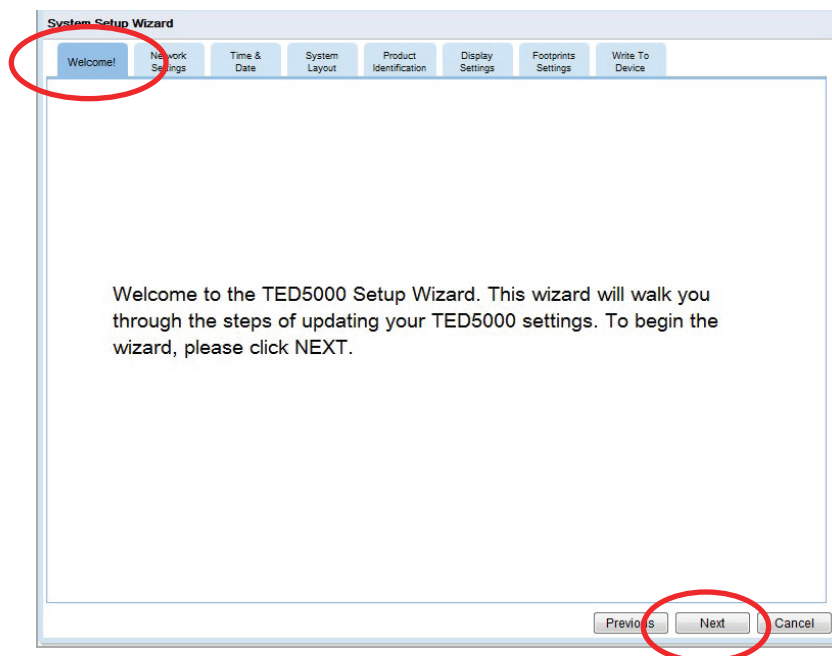
When you first open Footprints5000, you will see the Live Dashboard Screen. None of the data will be populated until you complete the Setup procedures described below.



To get your system up and running, please follow these steps completely. Under the EDIT tab, press System Setup Wizard as shown below to begin the Setup process.

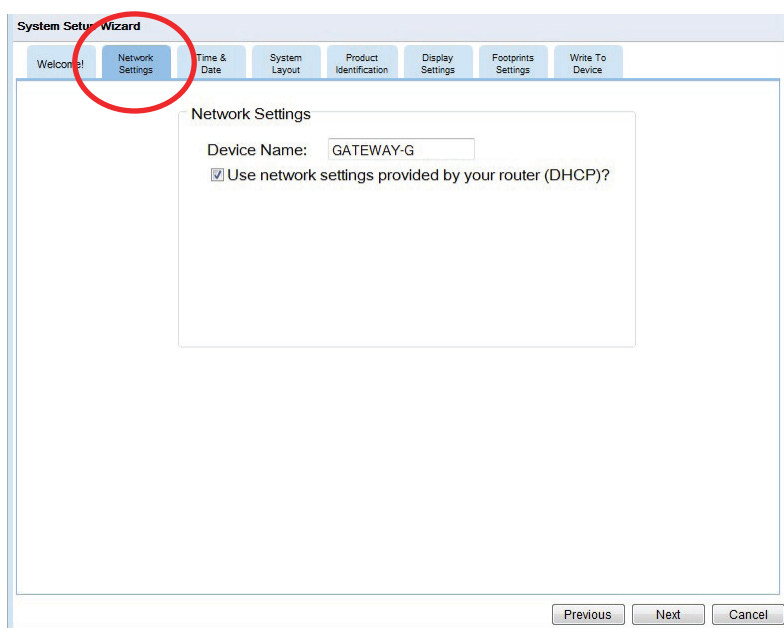


Next you will see the Welcome screen. You can move from screen-to-screen by pressing the next/previous button or by selecting the specific TAB you want. Let's go through the screens one by one: Please note that for most users the optimum settings are already set by default. Other than the Product IDs, we highly recommend that you leave the settings as is until you fully understand how it works and exactly what it is you want to change.



Network Settings tab

If you are connected to a standard router, you should not need to change these at all. If you are connected directly to your computer (*not recommended*) see Appendix A.



Time and Date

If you are connected to the internet (router or computer), TED will automatically retrieve the time. If not, uncheck the box and enter the time and date. Once set, the Gateway will keep track of time, even during a power failure.

System Setup Wizard

Welcome! Network Settings **Time & Date** System Layout Product Identification Display Settings Footprints Settings Write To Device

Date and Time

Synchronize Gateway with Time Server (NTP)
Server: pool.ntp.org

Timezone: (GMT-5) Eastern Time (US & Canada) ▼

Adjust for Daylight Savings Time?

Previous Next Cancel

System Layout

Here is where we tell TED about your installed system. If you have typical installation with one MTU, one Gateway and one Display, then you won't need to change anything. If you have more than one MTU (Dual Panel or Solar/Wind Package) then change the quantities as required. It will prompt you to give a description. Example: Panel 1 House, Panel 2 Garage.

System Setup Wizard

Welcome! Network Settings Time & Date **System Layout** Product Identification Display Settings Footprints Settings Write To Device

MTU and Displays

How Many MTUs? 1 ▼

How Many Displays? 1 ▼

Transmit Amplifiers On? Gateway MTU

Voltage Display

Display Voltage As? 120V ▼

Previous Next Cancel

Product IDs (Extremely important)

Footprints will automatically read the Gateway ID from the Gateway. The IDs for the MTU and Display are initially set to 00 00 00. The Gateway will only communicate with MTUs and Displays with IDs that you list under this tab. This is for security reasons. You don't want to be displaying your neighbor's energy use. Type in the ID(s) from MTU(s) in format 10 12 34 (they are located on the sticker on the MTU). Next you will need to get the ID of the Display(s). Press and hold the Display Button for **30** seconds and the ID will be shown. Type in the ID(s) from the Display(s) in format 30 12 34.

The Description is not required, but you may fill in something meaningful if you have more than one. For example, "Upstairs Display" and "Downstairs Display"

System Setup Wizard

Welcome! Network Settings Time & Date System Layout **Product Identification** Display Settings Footprints Settings Write To Device

Please enter the Product ID and Descriptions for your devices.

MTU Products

| Product ID | Description |
|---------------|-------------|
| MTU 1: 000000 | |

Gateway Products

| Product ID | Description |
|-----------------|-------------|
| Gateway: 2000D3 | |

Display Products

| Product ID | Description |
|-------------------|-------------|
| Display 1: 000000 | |

Previous Next Cancel

Operational Settings

These settings control how often information is updated in the system. **It is recommended that these not be changed.**

System Setup Wizard

Welcome! Network Settings Time & Date System Layout Product Identification **Operational Settings** Display Settings Footprints Settings Write To Device

Operational Settings

| | Normal Mode | Enhanced Mode | |
|-------------------------------|-------------|---------------|------------|
| Energy Update Time: | 60 | 10 | seconds |
| Energy Update Minimum Change | 100 | 100 | watts |
| Voltage Update Time: | 10 | 10 | seconds |
| Voltage Update Minimum Change | 1.0 | 0.2 | volts |
| Peak Energy Use Average Time: | 10 | | seconds |
| Peak Voltage Average Time: | 10 | | seconds |
| Carbon Cost: | 1.55 | | lbs per kW |
| Enhanced Mode Timer: | 2 | | minutes |

Previous Next Cancel

Display Setting

Your Display is very flexible; you can adjust the backlight, sleep and scroll settings, you can also select which screens to display. You can check one, any, or all of them depending on which information is important to you.

System Setup Wizard

Welcome! Network Settings Time & Date System Layout Product Identification **Display Settings** Footprints Settings Write To Device

Display Settings

| | Normal Mode | Enhanced Mode |
|--------------------------------|-------------|---------------|
| Backlight Settings on Power: | 20 | 100 % |
| Backlight Settings on Battery: | 100 | % |
| Backlight Timer: | 30 | secs |
| Scroll Timer: | 5 | secs |
| Battery Mode Sleep Timer: | 60 | secs |

Screen Choices

| | |
|---|---|
| <input checked="" type="checkbox"/> Current Use | <input type="checkbox"/> Voltage |
| <input checked="" type="checkbox"/> Recent Usage | <input checked="" type="checkbox"/> KW Detail Today |
| <input checked="" type="checkbox"/> Month To Date | <input type="checkbox"/> Spending Detail Today |
| <input checked="" type="checkbox"/> Monthly Projections | <input type="checkbox"/> Multi-Panel |
| <input type="checkbox"/> CO2 Panel | |

Previous Next Cancel

Footprints Settings

You can adjust the ranges displayed within the Footprints program.

Dashboard Settings:

The Max Value is the maximum amount shown on the graphical displays. If you have a small, energy-efficient home and family, you may only see a maximum real time use of 5kW. Change the “Real Time kW Usage” setting to “5” and the maximum on the dial will be 5kW instead of 12kW. If you have a large home, you may need to change it to 40kW to keep the needle from pegging. Any of the scales can be changed temporarily from the Dashboard by pressing the + - tabs. The Scale Value adjusts how much the scale changes with each press of the + - key.

Graph Settings

You can adjust which items will be graphed and in which color.

Misc Settings:

Input your Zip Code to see your local weather.

Click “Show Power Factor” and “KVA” if you would like to show these values on the Dashboard. (If you don’t know what they are, you probably don’t want to show them.)

Show Multiple MTUs : If you have multiple MTUs you can choose to show all the values or just the total.

System Setup Wizard

Welcome! | Network Settings | Time & Date | System Layout | Product Identification | Display Settings | **Footprints Settings** | Write To Device

Dashboard Settings

| | Max Value | Scale Value |
|-------------------------------|-----------|-------------|
| Real Time kW Usage: | 12 | 1 |
| kWh Usage Since Midnight: | 50 | 10 |
| kWh Usage This Month: | 2000 | 100 |
| Projected kWh Usage: | 2000 | 100 |
| Average Daily kWh Usage: | 50 | 1 |
| Current Spending Per Hour: | 1 | 1 |
| Money Spent Since Midnight: | 8 | 5 |
| Money Spent This Month: | 250 | 50 |
| Projected Bill: | 250 | 50 |
| Average Daily Spending: | 8 | 1 |
| Real Time CO2 Emissions: | 25 | 5 |
| CO2 Emissions Since Midnight: | 250 | 10 |
| CO2 Emissions This Month: | 3000 | 200 |
| Projected CO2 Emissions: | 3000 | 200 |
| Avg Daily CO2 Emissions: | 25 | 5 |
| Present Voltage: | 140 | 1 |
| Voltage History Bottom: | 100 | |

Graph Settings

Current kWh: Display

Current Voltage: Display

Misc. Settings

Weather Zip Code:

Show Power Factor and KVA on Dashboard?

Show multiple MTU data on Dashboard?

Previous | Next | Cancel

Write to Device

Like any software program, you need to save the changes you made. Changes will be applied when you click the Update button.

Backup Settings

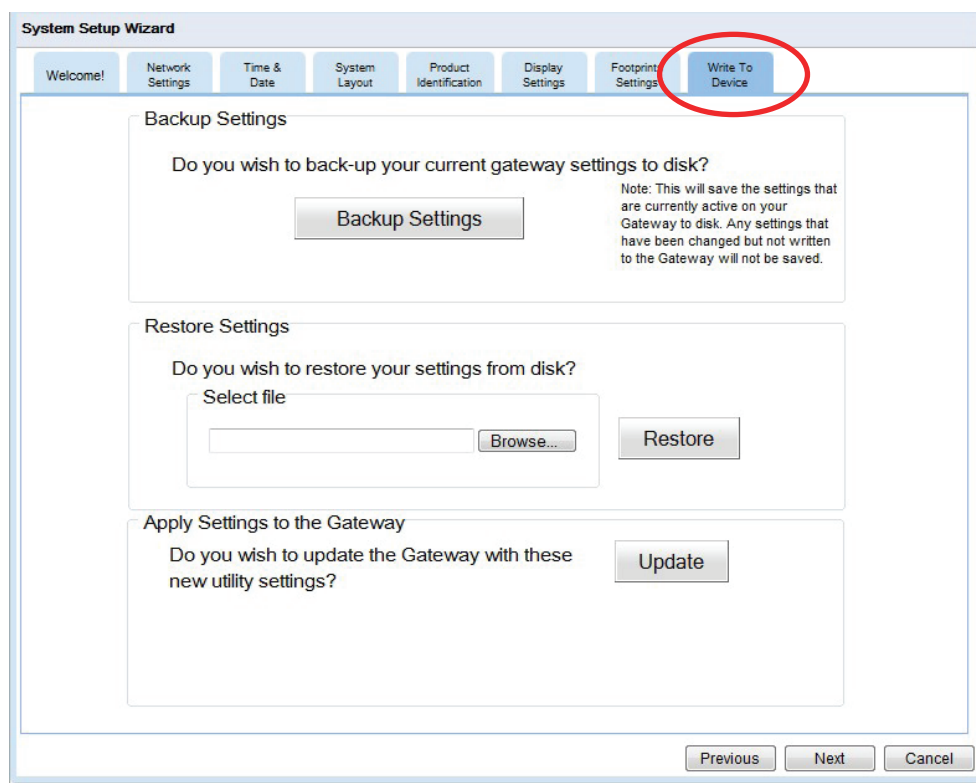
Before updating changes, you can save the previous settings to a file on your PC. (Recommended)

Restore Settings

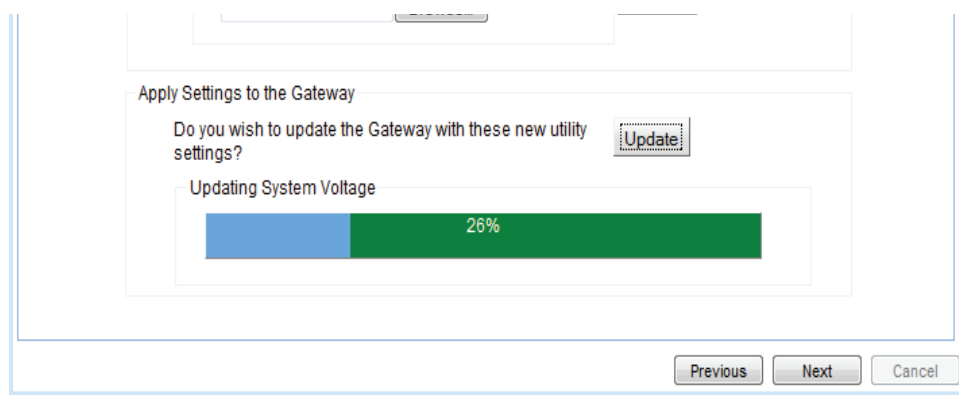
You can restore settings that you previously saved to a file on your PC. The restored settings will be applied when the Update button is selected.

Update

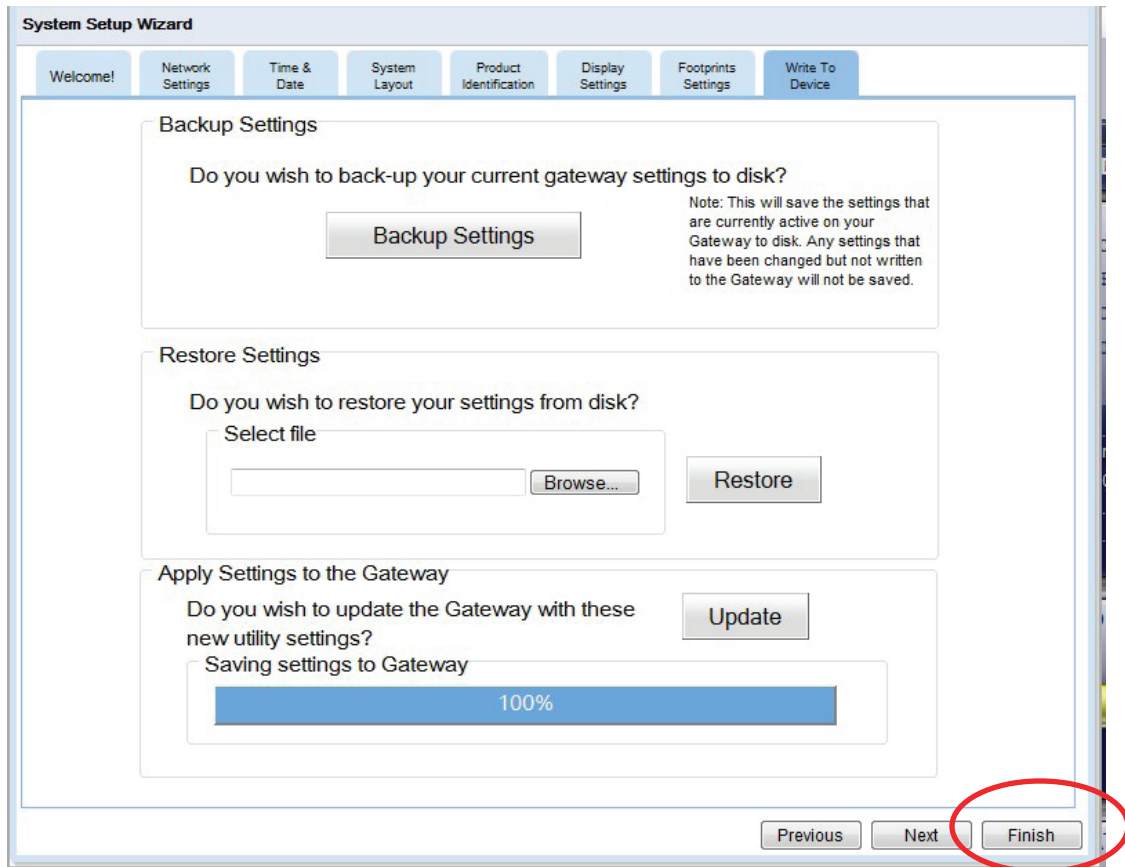
You will use this function every time you make a change to your TED 5000 system. This will update the changes you make and save them to the Gateway. **Press UPDATE.**



After pressing UPDATE, the progress bar will indicate that it is writing the data to the Gateway.



Wait for the progress bar to read 100%, then you press finish. Footprints will then refresh your browser and the system will begin operation with your new settings. You may make changes to the Settings at any time.



Utility Settings Wizard

These settings affect the **rate calculations** of your TED 5000 system. It would be most helpful to have your most recent electric bill handy for this.



Utility Setup Wizard

Welcome! **Utility Rate Setup** Plan Type Tiers Energy Rates Additional Charges Write To Device

Basic Setup

What is the Meter Read Date?

Utility Seasons

How many energy rate seasons does your utility use?

Select 1 if your utility does not have tariffs for different seasons of the year.
Select 2 if you have SUMMER and WINTER rates.
Select 3 if you have THREE seasons.
Selectr 4 if you have WINTER, SPRING, SUMMER, and FALL rates

Select NEXT after making your selection

Previous **Next** Cancel

Detailed description: This is a screenshot of the 'Utility Setup Wizard' dialog box. The 'Utility Rate Setup' tab is selected and circled in red. The 'Basic Setup' section contains a question 'What is the Meter Read Date?' with a dropdown menu set to '1'. The 'Utility Seasons' section contains a question 'How many energy rate seasons does your utility use?' with a dropdown menu set to '1'. Red arrows point from the explanatory text to these two dropdown menus. At the bottom right, the 'Next' button is circled in red. The dialog box has a title bar 'Utility Setup Wizard' and a tabbed interface at the top.

Utility Setup Wizard

Welcome! Utility Rate Setup **Plan Type** Tiers Energy Rates Additional Charges Write To Device

Plan Type

Please choose your plan type:

- Tiered
- Flat
- Tiered
- Time of Use
- Tiered and TOU

Choose your rate plan type here

FLAT - a fixed price per kWh. (i.e. \$0.1152)

TIERED - Your utility bill uses a tiered formula. (i.e. \$.xxxx for 1st xxx kWh and \$.xxxx for 2nd xxx kWh and \$.xxxx for 3rd kWh and so on.)

TIME OF USE - Your utility has different rates during different times of the day. (i.e. From 8-10a.m. is \$.xxxx kWh, from 1-6pm is \$.xxxx kWh.)

TIERED WITHIN A TIME OF USE - Choose this if your utility bill is based on a Tiered system within a Time of Use system. (i.e. \$0.xxxx for 1st xxx kWh from 8-10a.m., \$0.xxxx per kWh for 2nd kWh from 8-10a.m., etc.)

Select NEXT after making your selection

Previous Next Cancel

The Rate Plan Type selected will determine what the next screen will show

Screen Samples showing FLAT RATE with SEASONS

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **Energy Rates** Additional Charges Write To Device

Please enter your utility's rates:

Energy Rates

0.10000 \$/kW

Previous Next Cancel

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **Energy Rates** Additional Charges Write To Device

Please enter your utility's rates:

Winter

0.10000 \$/kW

Summer

0.00000 \$/kW

Previous Next Cancel

These are the screens that you would see if you were to select 1 Season, 2 Seasons, 3 Seasons, and 4 Seasons.

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **Energy Rates** Additional Charges Write To Device

Please enter your utility's rates:

Season 1

0.10000 \$/kW

Season 2

0.00000 \$/kW

Season 3

0.00000 \$/kW

Previous Next Cancel

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **Energy Rates** Additional Charges Write To Device

Please enter your utility's rates:

Winter

0.10000 \$/kW

Spring

0.00000 \$/kW

Summer

0.00000 \$/kW

Fall

0.00000 \$/kW

Previous Next Cancel

Screen Sample showing TIERED RATE with 2 SEASONS

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **Tiers** Energy Rates Additional Charges Write To Device

Tiers

How Many Tiers? 2

Winter

| | from | to |
|--------|------|-----|
| Tier 1 | 0 | 800 |
| Tier 2 | 801 | |

Summer

| | from | to |
|--------|------|------|
| Tier 1 | 0 | 1200 |
| Tier 2 | 1201 | |

Previous Next Cancel

If you entered a number of Seasons other than "1", you will enter the Tiers for each Season.

Upon entry of the break point of the 1st Tier, the second break point will automatically appear. You will then enter the break point of the 2nd Tier. The beginning of the 3rd Tier will automatically appear. After you've entered the next-to-last break point, TED will automatically show the beginning of the 'balance' of kWh.

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **Tiers** Energy Rates Additional Charges Write To Device

Tiers

How Many Tiers? 3

Winter

| | from | to |
|--------|------|-----|
| Tier 1 | 0 | 800 |
| Tier 2 | 801 | 802 |
| Tier 3 | 803 | |

Summer

| | from | to |
|--------|------|------|
| Tier 1 | 0 | 1200 |
| Tier 2 | 1201 | 1202 |
| Tier 3 | 1203 | |

Previous Next Cancel

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **Tiers** Energy Rates Additional Charges Write To Device

Tiers

How Many Tiers? 4

Winter

| | from | to |
|--------|------|-----|
| Tier 1 | 0 | 800 |
| Tier 2 | 801 | 802 |
| Tier 3 | 803 | 804 |
| Tier 4 | 805 | |

Summer

| | from | to |
|--------|------|------|
| Tier 1 | 0 | 1200 |
| Tier 2 | 1201 | 1202 |
| Tier 3 | 1203 | 1204 |
| Tier 4 | 1205 | |

Previous Next Cancel

Screen Samples showing TIME OF USE RATES with SEASONS

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type **TOU** Energy Rates Additional Charges Write To Device

TOU Rates

How Many TOU Rates? 4 TOU Rate Applicable? Saturday? Sunday? Holiday

TOU Times

| | Winter | | | | Summer | | | |
|------------|-----------------|---------|---------|---------|-----------------|---------|---------|-------|
| | AM TOU | | PM TOU | | AM TOU | | PM TOU | |
| | from | to | from | to | from | to | from | to |
| Super-Peak | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00 |
| Mid-Peak | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00 |
| Peak | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00AM | 12:00 |
| Off-Peak | All Other Times | | | | All Other Times | | | |

Previous **Next** Cancel

Most utilities consider weekends and holidays OFF PEAK. Check here if that is **NOT** the case.

Notice that each rate can be in the AM **and** the PM. If a rate occurs only once in the day, leave the other (AM or PM) at the default of 12:00 - 12:00.

If you have entered multiple Seasons, you will need to input the TOU periods for all seasons as well.

Select NEXT when completed

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type TOU **Energy Rates** Additional Charges Write To Device

Please enter your utility's rates:

Winter

| Super-Peak | Mid-Peak | Peak | Off-Peak |
|---------------|---------------|---------------|---------------|
| 0.10000 \$/kW | 0.00000 \$/kW | 0.00000 \$/kW | 0.00000 \$/kW |

Summer

| Super-Peak | Mid-Peak | Peak | Off-Peak |
|---------------|---------------|---------------|---------------|
| 0.00000 \$/kW | 0.00000 \$/kW | 0.00000 \$/kW | 0.00000 \$/kW |

Previous **Next** Cancel

Enter the corresponding rates. If your utility has a 6th digit, just round it up/down.

Select NEXT when completed

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type TOU Energy Rates **Additional Charges** Write To Device

Energy or Fuel Surcharge

Is there an Energy or Fuel Surcharge? Yes

Winter \$/kWh 0.00 Summer \$/kWh 0.00

This is a charge billed by some, but not all utilities from time to time to recover their costs for extraordinary fuel prices.

Fixed Charges

Does your utility make a Fixed Charge per period? Yes

Winter \$ 10.00 Summer \$ 0.00

For example, neighborhood street lighting costs, or any other recurring costs the Utility may pass on to the consumer. If more than one fixed fee applies, enter the sum of all fees.

Minimum Charge

Does your utility charge a Minimum Charge Per Period? Yes

Winter \$ 0.00 Summer \$ 0.00

Some utilities, in addition to a charge per kWh, have a minimum charge for electricity. This is typically a flat-fee.

Taxes

Are there municipal, state, or federal taxes applied to your bill? Yes

Winter % 5.00 Summer % 0.00

Charged as a percentage calculation of the entire bill. If you have multiple items on your bill that are calculated as a percentage, you can add them all together and enter them here.

Previous **Next** Cancel

Select NEXT when completed

Write to Device

Like any software program, you need to save the changes you made. Changes will be applied when you click the Update button.

Backup Settings

Before updating changes, you can save the previous settings to a file on your PC. (Recommended)

Restore Settings

You can restore settings that you previously saved to a file on your PC. The restored settings will be applied when the Update button is selected.

Update

You will use this function every time you make a change to your TED 5000 system. This will update the changes you make and save them to the Gateway. **Press UPDATE.**

Utility Setup Wizard

Welcome! Utility Rate Setup Plan Type TOU Energy Rates Additional Charges **Write To Device**

Backup Settings

Do you wish to back-up your current gateway settings to disk?

Backup Settings

Note: This will save the settings that are currently active on your Gateway to disk. Any settings that have been changed but not written to the Gateway will not be saved.

Restore Settings

Do you wish to restore your settings from disk?

Select file

Browse... Restore

Apply Settings to the Gateway

Do you wish to update the Gateway with these new utility settings? Update ← Press

Previous Next Cancel

Apply Settings to the Gateway

Do you wish to update the Gateway with these new utility settings? Update

Updating System Voltage

26%

Wait on the progress bar to reach 100%, and then press FINISH

Previous Next Cancel

Firmware Update

There will be occasions when TED or your utility may have an update for your firmware. It could be an update for your Display, the MTU, or the Gateway. It may be a rate change, software modification, or a new feature. There are several ways in which you can receive the update: by link in an email, a direct download from the TED website, or from your Utility's website. It will be your option to install the update.

Once you have downloaded the update to your computer, you will need to run the "Update Firmware" feature on TED 5000 shown below.



Click the Browse button and locate the firmware you are wanting to update. Once you have located and selected the file, click UPDATE FIRMWARE. The process is totally automatic at this point. Depending on the complexity of the update, this process could take from 10 seconds to 10 minutes.

Update Firmware

To update the firmware of a TED device, upload the *.bin file here. After the file is uploaded, the Gateway will automatically distribute the firmware to the correct devices. Please do not disconnect or remove power from these devices during this process.

Select Firmware

Please select the firmware to upload:

Browse...

Upload Firmware
Cancel

Google PowerMeter

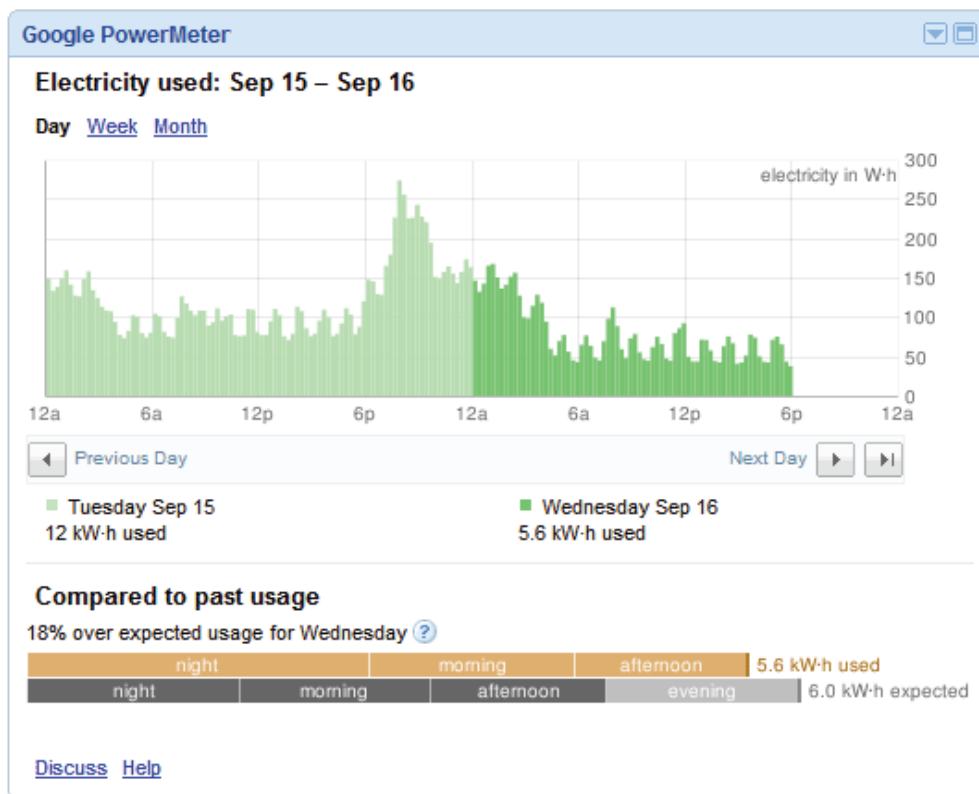
Your TED 5000 works with Google PowerMeter - Google's home energy monitoring tool.

Google PowerMeter helps you:

- **Access data** - View your electricity usage from any Internet-connected device, including your mobile phone.
- **Compare** - Display current and historical usage side-by-side in easy-to-understand charts and graphs.
- **Save** - Discover ways to reduce your electricity usage and lower your monthly bills.

Stay tuned as we continue to enhance Google PowerMeter.

To learn more about Google PowerMeter and to join our mailing list, visit www.google.org/powermeter.



Things to know before you enroll in Google PowerMeter

- Activating your TED 5000 for Google PowerMeter doesn't alter your Footprints profile in any way.
- Using Google PowerMeter does not send any personally identifiable information to Google.

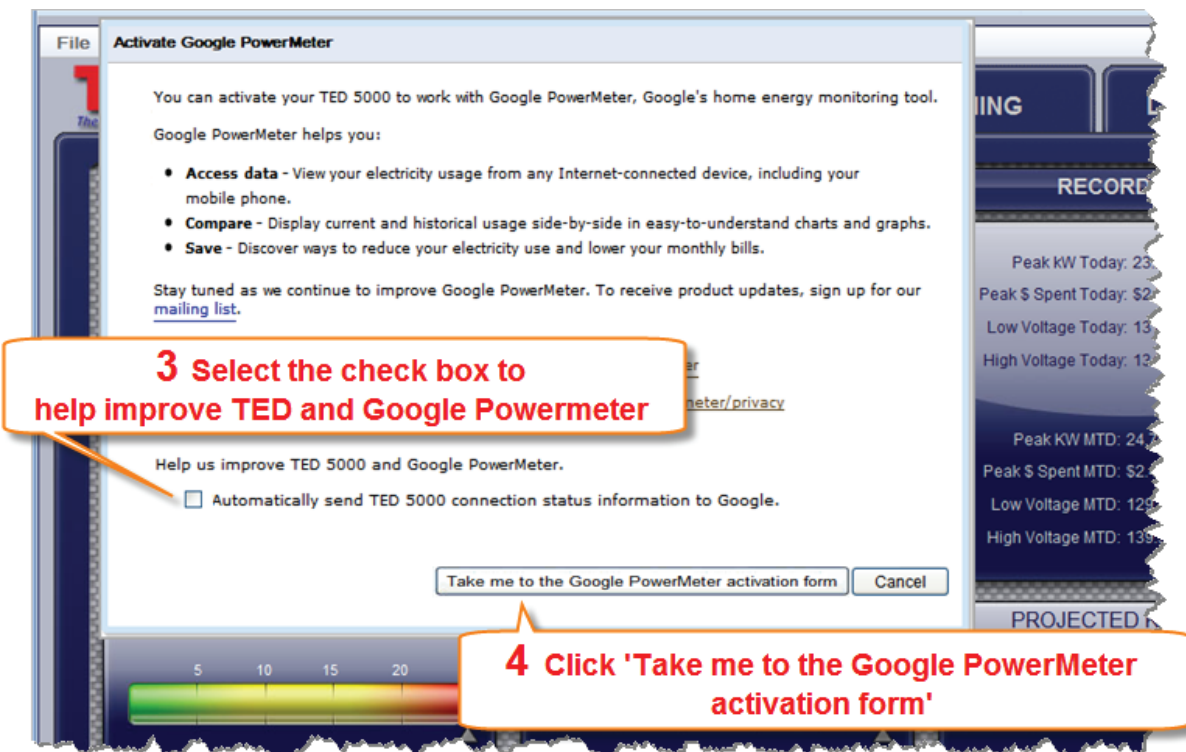
- You can choose to stop using Google PowerMeter at any time.
- You can help improve both the TED 5000 and Google PowerMeter by sending connection status information to Google.

Activate Your TED 5000 for Google PowerMeter

In Footprints:



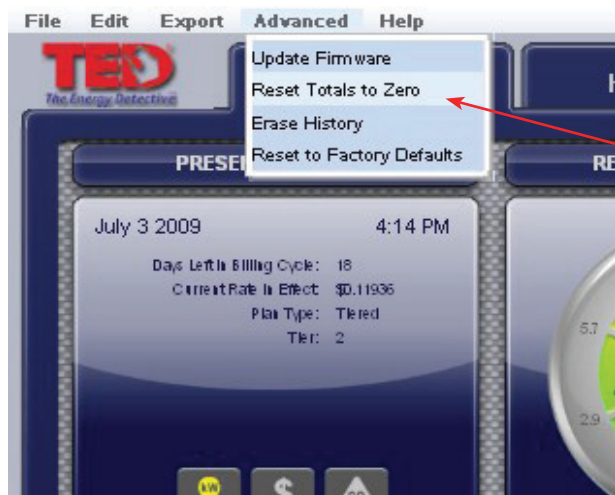
When the "Activate Google PowerMeter" page appears:



Complete and submit the activation form to activate your TED 5000 for Google PowerMeter.

To adjust your settings or unenroll from Google PowerMeter visit: www.google.com/powermeter

Other commands under the SETUP tab:



Reset Totals to Zero

This action will reset daily and month-to-date totals to ZERO. It is a non-recoverable event, so be sure you want to reset the data.



Erase History

This action will erase **all** of the recorded HISTORY. It is a non-recoverable event, so be sure you want to erase your history.



Reset to Factory Default

This action will erase all of the settings that have been saved to your device, and restore it to the settings from the factory. This is a non-recoverable event, so be sure you want to lose your present settings. .

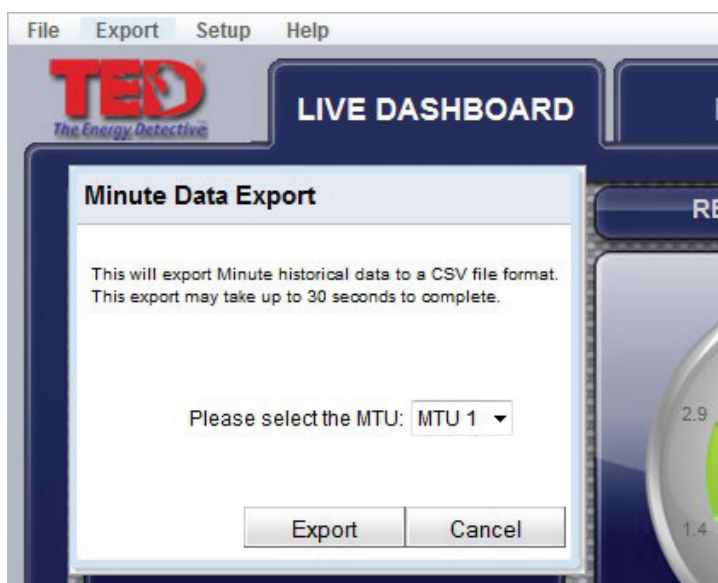
EXPORT Tab



Data Export Feature

Since TED 5000 stores seconds, minutes, hours, days, and months in separate files, they can be exported independent of each other.

Simply select the data you would like to export to analyze, and follow the on-screen instructions.



If you have multiple MTUs or a SOLAR /WIND installation, you can output the data for each for analysis.

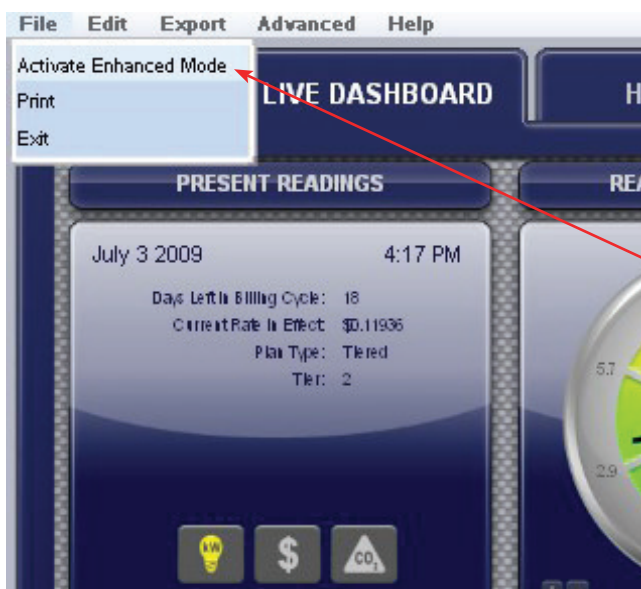
FILE Tab

Print / Enhanced Mode / Exit



Print

This action will allow you to print any of the screens as you see them on TED 5000, i.e. the Dashboard, Historical Charts, Graphs or Load Profiles.



Activate Enhanced Mode

Activating Enhanced Mode will temporarily change the sample/transmission interval of your power and voltage readings to reflect the settings you have in SYSTEM SETUP.

You might use this feature to do some temporary diagnostics where you need to see very fast response times beyond what you would routinely want to see.

HISTORY Tab

Use this History Chart to compare your usage with prior time periods. The data auto-populates.

Compare Hours, Days, and Months.

File Edit Export Advanced Help



LIVE DASHBOARD

HISTORY

GRAPHING

LOAD PROFILE

Month History

| This Year | | | Last Year | | |
|-----------|----------|----------|-----------|-------|--------|
| Month | Power | Cost | Month | Power | Cost |
| Jan 09 | 0 MWh | \$0.00 | Jan 08 | 0 MWh | \$0.00 |
| May 09 | 3050 MWh | \$310.12 | May 08 | 0 MWh | \$0.00 |
| Apr 09 | 0 MWh | \$0.00 | Apr 08 | 0 MWh | \$0.00 |
| Mar 09 | 0 MWh | \$0.00 | Mar 08 | 0 MWh | \$0.00 |
| Feb 09 | 0 MWh | \$0.00 | Feb 08 | 0 MWh | \$0.00 |
| Jan 09 | 0 MWh | \$0.00 | Jan 08 | 0 MWh | \$0.00 |
| Dec 08 | 174 MWh | \$120.05 | Dec 07 | 0 MWh | \$0.00 |
| Nov 08 | 0 MWh | \$0.00 | Nov 07 | 0 MWh | \$0.00 |
| Oct 08 | 0 MWh | \$0.00 | Oct 07 | 0 MWh | \$0.00 |
| Sep 08 | 0 MWh | \$0.00 | Sep 07 | 0 MWh | \$0.00 |
| Aug 08 | 0 MWh | \$0.00 | Aug 07 | 0 MWh | \$0.00 |
| Jul 08 | 0 MWh | \$0.00 | Jul 07 | 0 MWh | \$0.00 |

Hour History

| Today | | | Yesterday | | |
|-------------|--------|--------|-------------|-------|--------|
| Hour | Power | Cost | Hour | Power | Cost |
| 07.03 15:00 | 4 MWh | \$0.43 | 07.02 15:00 | 7 MWh | \$0.85 |
| 07.03 14:00 | 4 MWh | \$0.44 | 07.02 14:00 | 5 MWh | \$0.65 |
| 07.03 13:00 | 4 MWh | \$0.46 | 07.02 13:00 | 5 MWh | \$0.68 |
| 07.03 12:00 | 6 MWh | \$0.79 | 07.02 12:00 | 5 MWh | \$0.64 |
| 07.03 11:00 | 12 MWh | \$1.49 | 07.02 11:00 | 5 MWh | \$0.64 |
| 07.03 10:00 | 5 MWh | \$0.62 | 07.02 10:00 | 5 MWh | \$0.67 |
| 07.03 09:00 | 3 MWh | \$0.41 | 07.02 09:00 | 5 MWh | \$0.66 |
| 07.03 08:00 | 4 MWh | \$0.48 | 07.02 08:00 | 6 MWh | \$0.69 |
| 07.03 07:00 | 4 MWh | \$0.43 | 07.02 07:00 | 5 MWh | \$0.57 |
| 07.03 06:00 | 3 MWh | \$0.41 | 07.02 06:00 | 4 MWh | \$0.50 |
| 07.03 05:00 | 4 MWh | \$0.47 | 07.02 05:00 | 4 MWh | \$0.53 |
| 07.03 04:00 | 4 MWh | \$0.51 | 07.02 04:00 | 5 MWh | \$0.60 |
| 07.03 03:00 | 5 MWh | \$0.67 | 07.02 03:00 | 5 MWh | \$0.65 |
| 07.03 02:00 | 6 MWh | \$0.79 | 07.02 02:00 | 5 MWh | \$0.61 |
| 07.03 01:00 | 9 MWh | \$1.11 | 07.02 01:00 | 5 MWh | \$0.61 |
| 07.03 00:00 | 7 MWh | \$0.87 | 07.02 00:00 | 5 MWh | \$0.65 |
| 07.02 23:00 | 5 MWh | \$0.65 | 07.01 23:00 | 6 MWh | \$0.69 |
| 07.02 22:00 | 6 MWh | \$0.70 | 07.01 22:00 | 8 MWh | \$0.93 |
| 07.02 21:00 | 6 MWh | \$0.74 | 07.01 21:00 | 8 MWh | \$0.98 |
| 07.02 20:00 | 6 MWh | \$0.78 | 07.01 20:00 | 8 MWh | \$0.99 |
| 07.02 19:00 | 6 MWh | \$0.73 | 07.01 19:00 | 9 MWh | \$1.10 |
| 07.02 18:00 | 5 MWh | \$0.62 | 07.01 18:00 | 7 MWh | \$0.82 |
| 07.02 17:00 | 5 MWh | \$0.63 | 07.01 17:00 | 7 MWh | \$0.82 |
| 07.02 16:00 | 5 MWh | \$0.66 | 07.01 16:00 | 6 MWh | \$0.69 |

Day History

| This Week | | | Last Week | | |
|-----------|---------|---------|-----------|---------|---------|
| Day | Power | Cost | Day | Power | Cost |
| Tue 07.02 | 127 MWh | \$15.68 | Tue 06.25 | 131 MWh | \$20.39 |
| Wed 07.01 | 132 MWh | \$16.28 | Wed 06.24 | 151 MWh | \$18.07 |
| Thu 06.30 | 128 MWh | \$15.78 | Thu 06.23 | 145 MWh | \$14.49 |
| Fri 06.29 | 149 MWh | \$21.61 | Fri 06.22 | 138 MWh | \$13.76 |
| Sat 06.28 | 138 MWh | \$21.42 | Sat 06.21 | 131 MWh | \$13.07 |
| Sun 06.27 | 136 MWh | \$21.21 | Sun 06.20 | 160 MWh | \$16.01 |
| Mon 06.26 | 138 MWh | \$21.48 | Mon 06.19 | 141 MWh | \$14.14 |

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GRAPHING Tab

TED 5000 stores data internally in its Gateway. This data can be retrieved at any time and graphed displayed in graphic form. The data available for viewing is:

SECONDS - one hour of second-data in increments from Live (real-time) recording, 30-seconds, or 1, 2, 5, 15, 30 and 60 minutes.

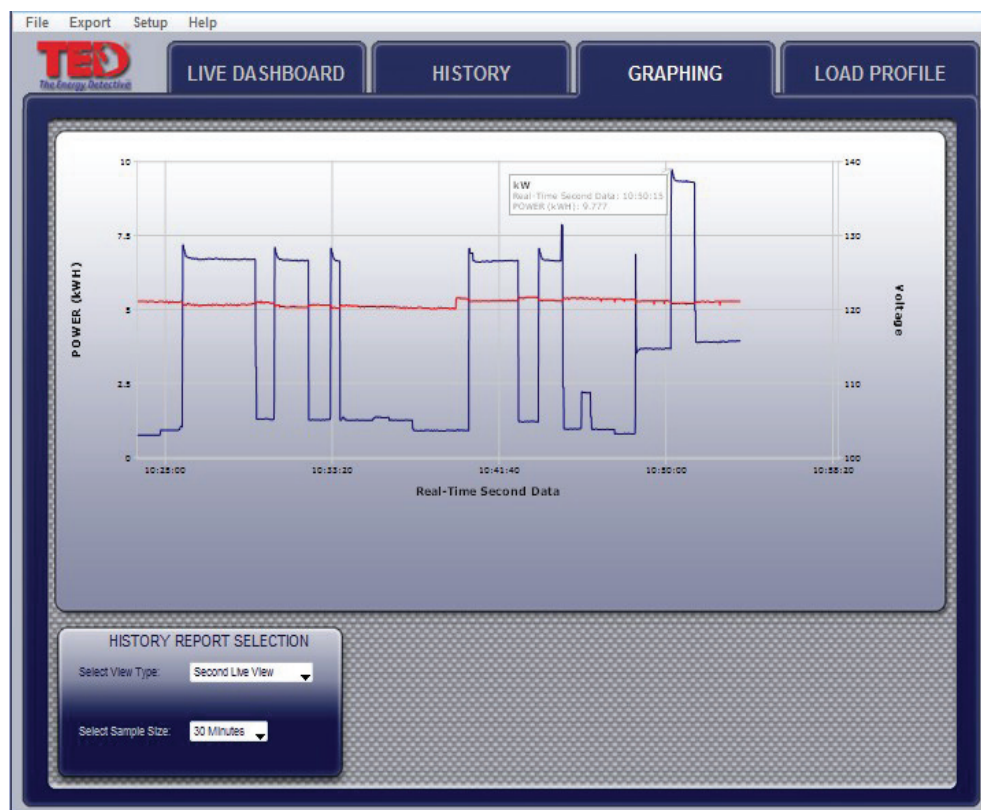
MINUTES - 48 hours of minute-data may be displayed in increments from 30 minutes; 1, 2, 4, 12, 24, 36, to 48 hours.

HOUR - 90 days of hourly data are stored. Historical Hourly Data is viewable for any selected date-range in increments of 7-day periods. Specific Hourly Data can be viewed in kWh, Voltage, or Dollars.

DAY - 2 years of Daily data are stored. Daily Data is viewable for any selected range for the prior 2 years in 90-day periods. Data viewable is: kWh, Dollars, Minimum/Maximum Voltage, Minimum/Maximum Cost, Minimum/Maximum Power (kW).

MONTH - 10 years of Monthly data are stored. Data viewable is: kWh, Dollars, Minimum/Maximum Voltage, Minimum/Maximum Cost, Minimum/Maximum Power (kW).

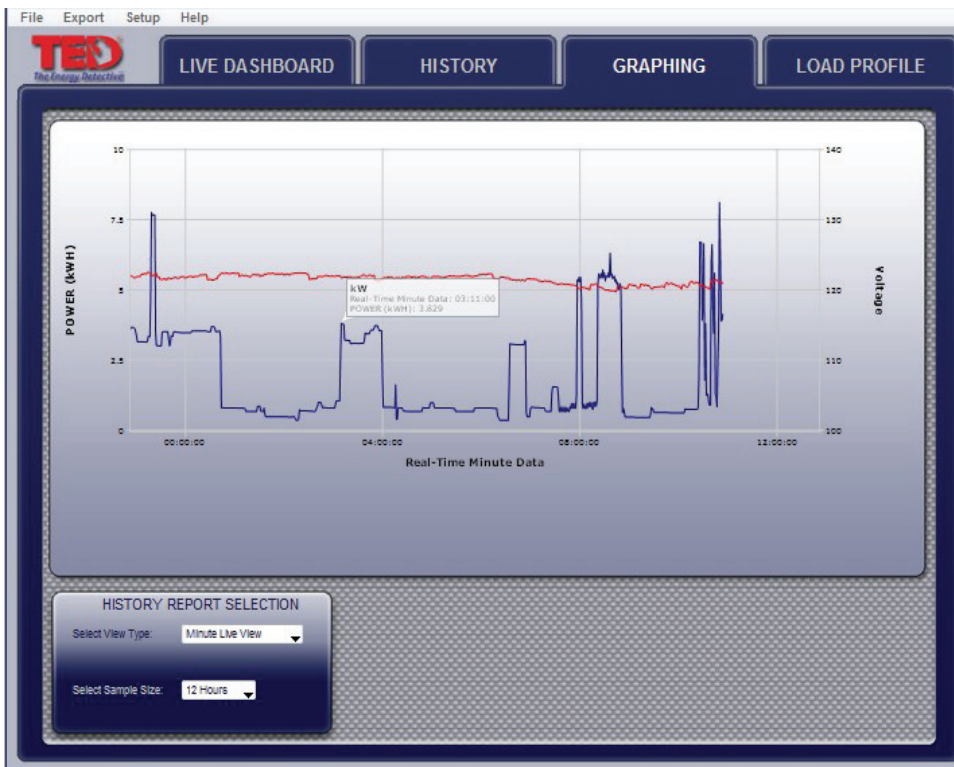
Sample - SECONDS graph of KW - scale selected is 30 seconds



Line colors are user-selectable in System Setup.

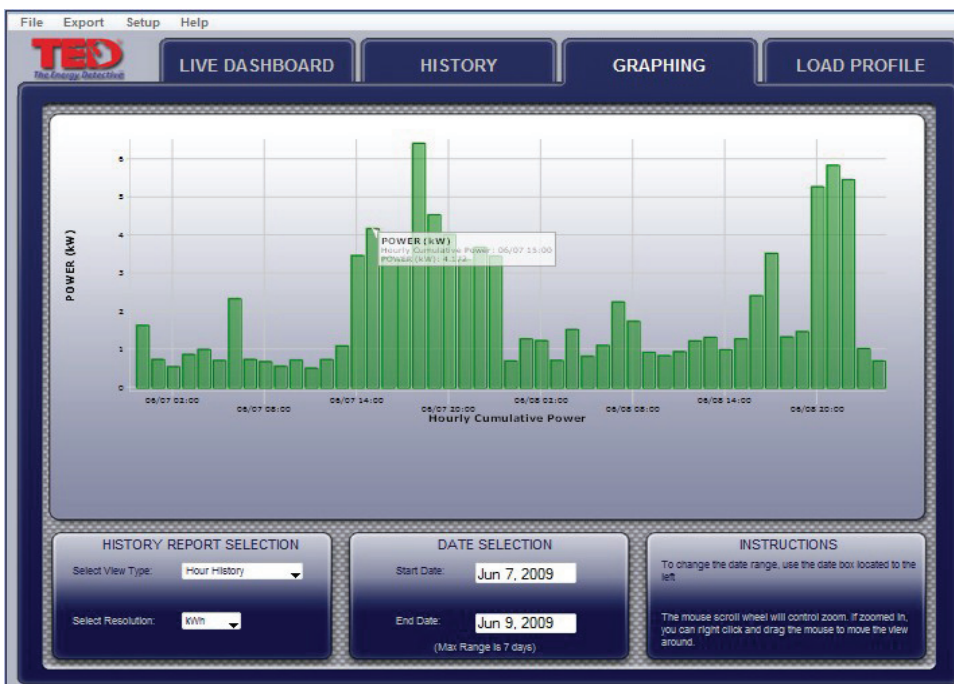
If more than 1 MTU is installed, or Solar/Wind package installed, each MTU is displayed layered or independently.

Sample - MINUTE graph of KW- scale selected is 12 Hours



Looking at this graph, you can immediately see when the HVAC is on, when activity begins in the home, hotwater heater coming on, etc.

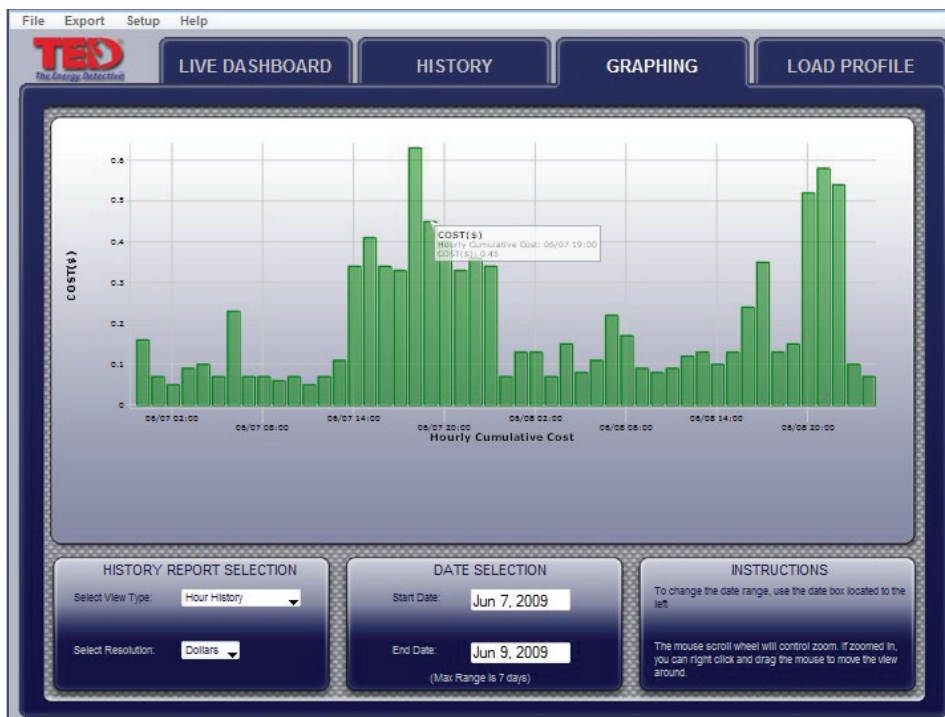
Sample - HOUR graph of kWh - range selected is 2 days



Hovering over any point on any graph will give the specific detail of that moment in time.

This is a 2-day view showing the kWh used each hour of the day.

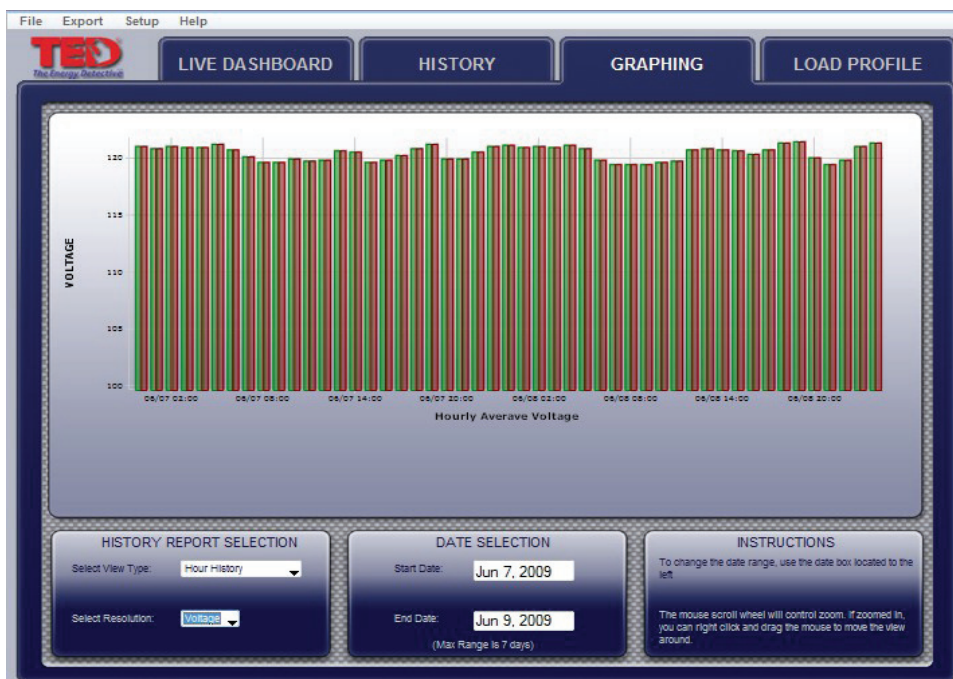
Sample - HOUR graph of Dollars spent - range selected is 2 Days



This is a 2-day view showing the Dollars spent each hour of the day.

Hover over any point to see the specific usage detail.

Sample - HOUR graph of Minimum and Maximum Voltage - range selected is 2 Days



This is a 2-day view showing the minimum and maximum voltage delivered to your home over a 2-day period.

As with all graphs, hover over any point on the graph to see the specific detail.

Sample - DAY graph of kWh usage - range selected is 7 Days



This is a 7-day view showing the kWh used each day.

See what days most electricity is used. What took place those days?

Sample - DAY graph of Minimum and Maximum kW usage - range selected is 7 Days



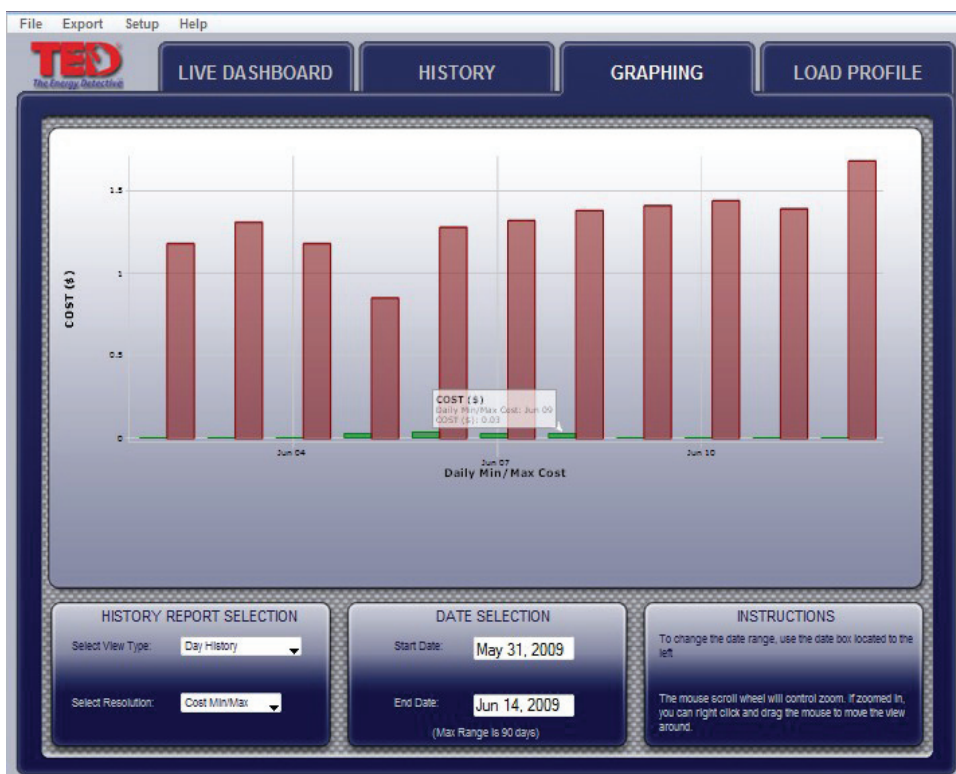
This is a 7-day view showing the minimum and maximum kW used each day.

Why so high?!

Why so low?!

How low can you go?

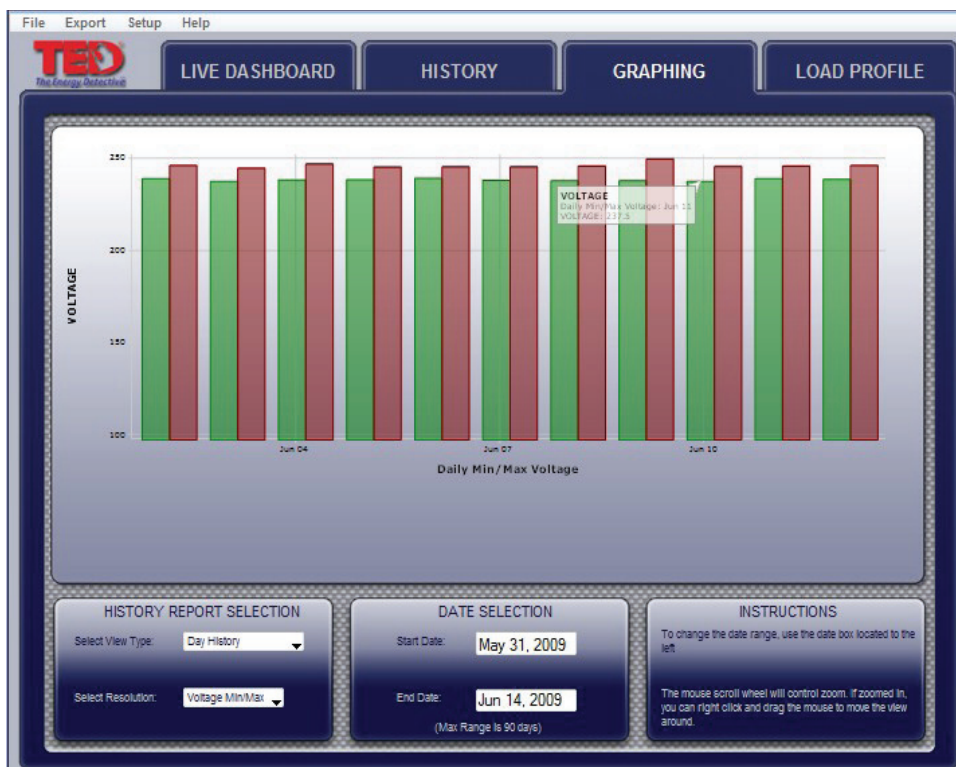
Sample - DAY graph of Minimum and Maximum of Money Spent - range 7 days



This is a 7-day view showing the most and least amount of money spent each day.

Now it's meaningful! The money counts.

Sample - DAY graph of Minimum and Maximum of Voltage - range 11 days



This is a 11-day view showing the most and least amount of voltage each day coming from the utility.

The Solar/Wind package will show the generation, grid-supplied power, and the net.

Load Profile

TED Footprints provides the ability to monitor simple changes in kW usage to create Load Profile Events. The concept of Load Profiling is based on TED's recognition of a 'footprint' created when a load is turned on or off. Theoretically, any electrical load may be profiled, however, the more common the load (i.e. 60w light), the more likely a false-positive will be registered. In other words, you may turn on your computer or TV, or any 60w load, and Footprints would not be able to discern which was turned on - the light, the computer, or the TV. That being said, major loads (water heater, HVAC, pool pump, hot tub) are more easily profiled because they are less likely to have similar loads. Please note that the Load Profile feature is only intended to indicate when an appliance might have possibly been turned on or off, and that many factors may cause an event to be incorrectly registered.

The following is an example of Load Profiling a Hot Water Heater

A hot water heater turning on might register a 4.6kW increase over a few seconds. TED Footprints will watch for a 4.6 kW increase and register an event signaling that the device has been turned on. Once a 4.6kW decrease is measured, Footprints will log an additional event signaling that the device has been turned off.



To Add, Edit or Delete a Load Profile Appliance. select "Load Profile Wizard" under EDIT.

TED Footprints will track up to five electrical devices.

To ADD a device

The wizard will prompt you for the name of the device. Appliance Names must be unique. If you attempt to add a second appliance with the same name as an appliance that already exists, you will overwrite the settings of the original appliance.

MTU# allows you to select which MTU the load may be measured by (in the instance of dual electric panels, or solar/wind generation). Generally, there will only be one MTU.

Start Stages - Some electrical devices have multiple-start stages (i.e. some HVAC systems).

Stop Stages - As with Start Stages, some devices power down in stages.

Percent Error - This figure can be adjusted as the user wishes. It will help TED Footprints to avoid false-positive readings.

 A screenshot of the 'Load Profile Configuration' dialog box. It has a title bar 'Load Profile Configuration' and a section 'Device Information'. Below this is a paragraph of instructions: 'At this step, please enter the basic information about the household appliance device you wish to track. You can specify the name of the device and the number of stages that are used to power the device up or down. In most cases, appliances will only have one stage. For information on multi-stage appliances, please consult the User Manual. You can adjust the percentage of error to allow when detecting whether or not a device is turned on or off. Generally this setting can be left at the default, but if a device tends to use different amounts of power (based on load type) every time it's started, you can adjust this value to allow those ranges to be detected.' Below the text is a form titled 'Please enter device information' with the following fields: 'Device Name: Hot Water Heater', 'MTU: MTU 1', 'Start Stages: 1 Stage', 'Stop Stages: 1 Stage', and 'Percent Error: 10.0'. At the bottom are buttons for 'Delete', 'Back', 'Next', and 'Close'.

Load Profile Configuration

HVAC Upstairs Power On Settings

Now it's time to enter how much power is used when the appliance is started up. This can either be entered manually, or you can press the LEARN button. For best results, turn off as many appliances as possible during this process. If there are multiple steps involved, please remember that each step is the difference in kW usage from the previous step.

Press the LEARN button to monitor the kW usage for an event. Turn on the appliance you wish to detect while the SCANNING is taking place. The device may need to be on for over 30 seconds to be detected. Once a kW change is detected, you will be notified that the process is complete and the value will be entered into the step trigger amount field. If you have multiple steps, each step will be filled in as it's detected.

Device Start Steps

Stage 1:

Current Readings

Live: 3.808 kW

Event: 3.765 kW

Load Profile Configuration

Save Device Settings

Please review the settings below. To save the settings, please press the UPDATE button below.

Hot Water Heater Settings

| | |
|------------------|-------------------|
| Power On Steps | Power Off Steps |
| Stage 1: 4.42 kW | Stage 1: -4.42 kW |

Load Profile Configuration

Welcome To the Load Profile Wizard

Welcome to the Load Profile Wizard. This wizard will allow you to add or edit device footprints. These signatures will help determine whether or not a device is on or off.

Please select an existing device, or add a new device. You can track up to five devices.

Please select a device

| | |
|---------------------------------|-------------------------------------|
| Hot Water Heater (2 steps) - ON | <input type="button" value="EDIT"/> |
| DEVICE AVAILABLE | <input type="button" value="ADD"/> |
| DEVICE AVAILABLE | <input type="button" value="ADD"/> |
| DEVICE AVAILABLE | <input type="button" value="ADD"/> |
| DEVICE AVAILABLE | <input type="button" value="ADD"/> |

For best results, it is best to turn off as many appliances as possible prior to setting up Load Profiles; be certain that the electrical load of your home is stable, and not fluctuating.

When the Learn button is pressed, Footprints will monitor for the next kW increase. The device being profiled may need to be on for over 30 seconds to be detected. Once a kW change is detected, the value will be automatically entered into Stage 1 field.

Alternatively, you may manually input the value if preferred.

Current Readings:

Live - is the actual usage of your home at the moment.

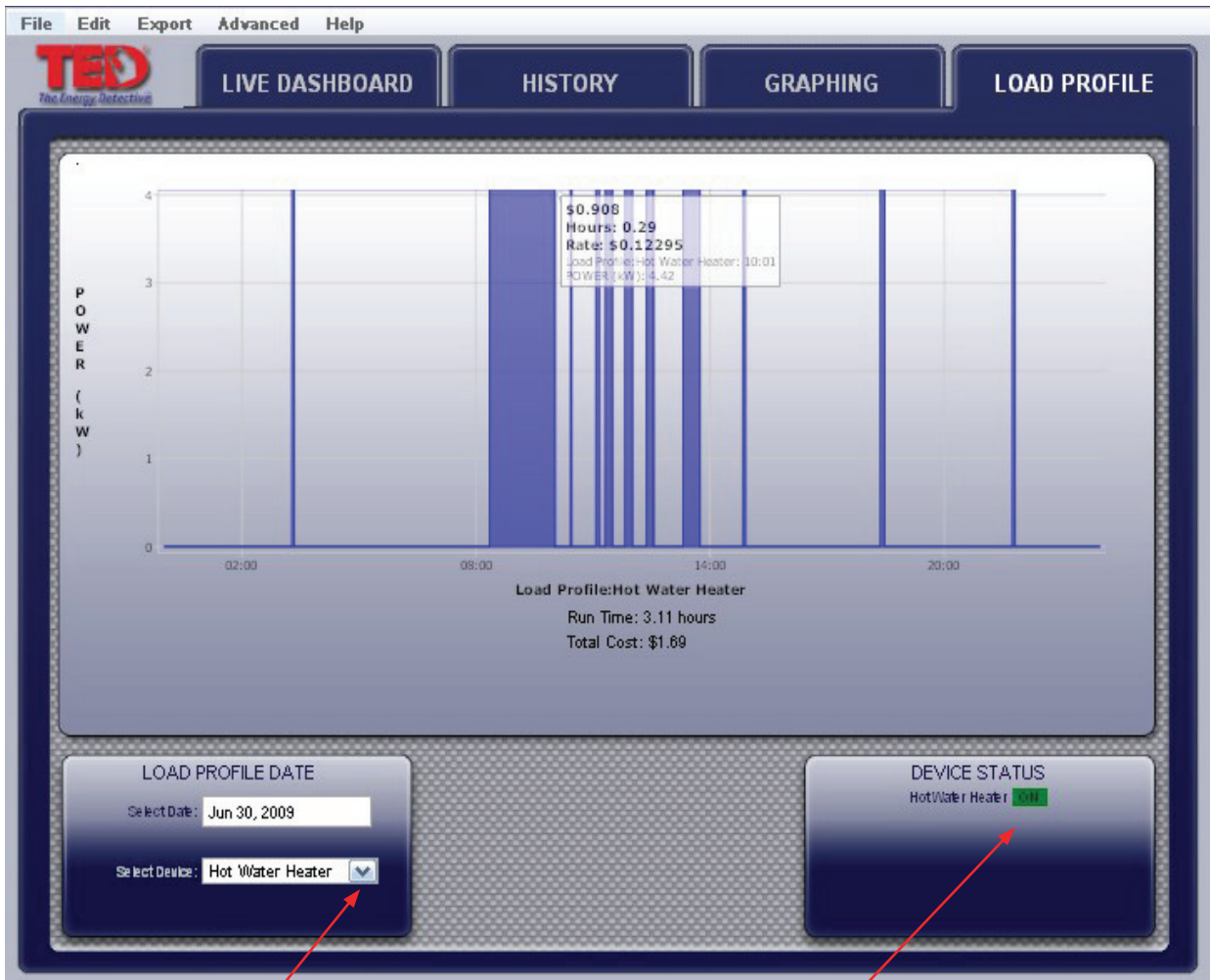
Event - is the last change TED noted in the power.

You may press the BACK button at any time to go back to a prior screen.

When Load Profile is complete, press the SAVE button to complete the process.

To EDIT or DELETE your Load Profile settings, select the Load Profile Wizard under the EDIT, and select the device you wish to modify.

Modifications to a Load Profile are performed as stated in the 'ADD' section detailed above.



Click the drop-down to view other Loads that have been profiled

You may manually toggle a device on/off by clicking here.

Solar/Wind Generation

MTU 1 should always be set to LOAD (MTU 1 should be the MTU in the main electrical panel).

Set the remaining MTU which is connected to your Solar/Wind inverter to be "Generation."

If you are generating power (solar/wind, or auxiliary generator), TED is designed to record your *Generation*, *Consumption*, and record the *Net* of the two as well. At any time, you can see each independently simply by checking the appropriate tab on the Live Dashboard (MTU1, MTU2, NET).

This section is to be completed only after the physical installation of the MTU(s) and CT(s) have been completed.

Depending on the TED system purchased, your system came with two MTUs or more (a TED system can have up to 4 MTUs). One/some MTU(s) will be measuring your Consumption (Load), and the second(other) MTU will be measuring your Production (Generation). Footprints will record each of these, and also present the NET of your Production/Consumption.

Under the EDIT tab, select System Setup Wizard

- Select the tab System Layout
- Under "How Many MTUs?," click the drop-down and select how many you have installed.
- Under "Multiple MTU Configuration," select "SOLAR" if you have installed a Generating system.



Only after you have completed the Setup of your system will the changes be noted on the Live Dashboard.

By selecting "NET", you will see a combined view of both/all of your MTUs...showing you a positive number if your consumption is greater than your generation, or a negative view if you are generating more electricity than you are consuming (sending electricity back to the grid).

You can view MTU1, MTU2, (MTU3 & MTU4 - if you have that many installed) all independently simply by selecting the appropriate MTU.

APPENDIX A

Connecting TED 5000 Gateway Directly to a Computer

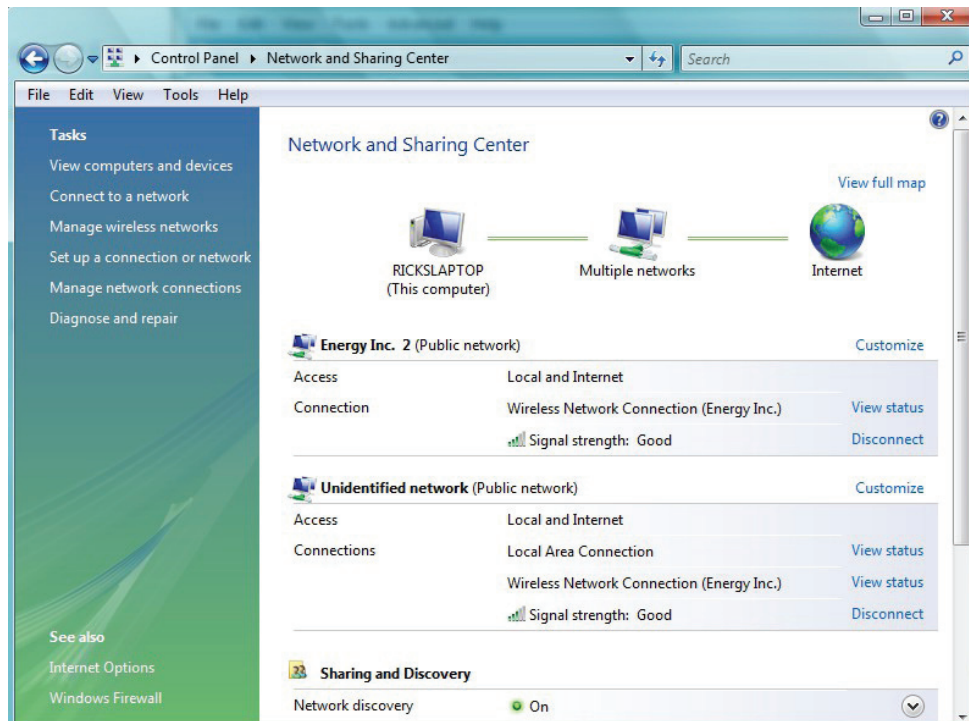
Note: It is highly recommended that you connect your Gateway directly to your router, *and not your computer*.

- Installation and setup is simplified.
- Energy information can be viewed by any device connected on your home network.
- Time is automatically synchronized.
- Up to the minute weather information is available.

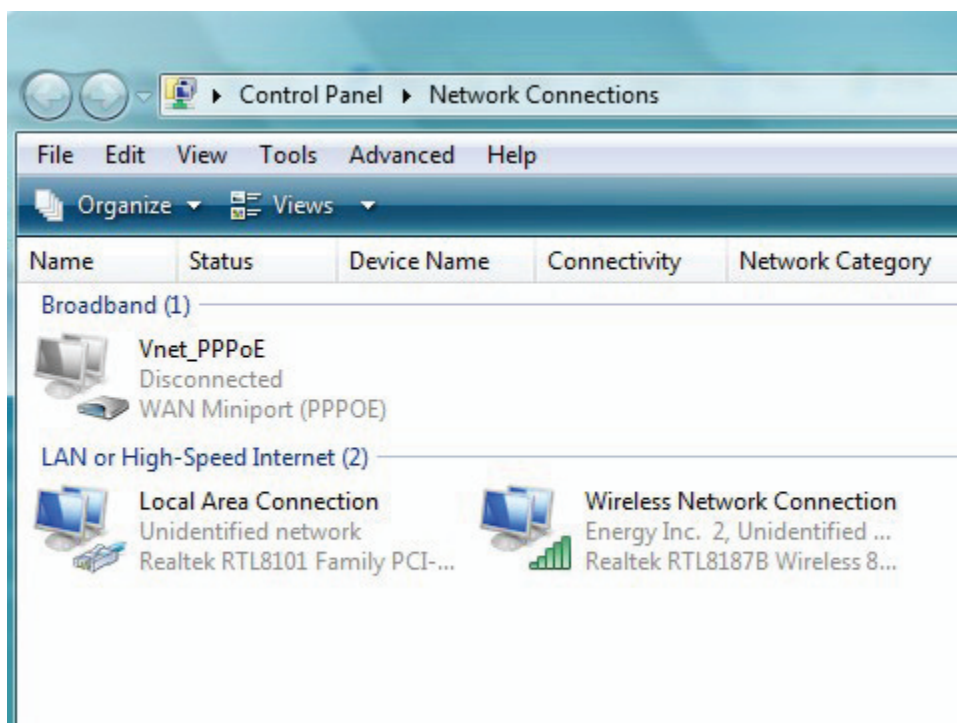
If you do not have a router, we highly recommend that you purchase one.

To connect your Gateway directly to your computer, you will most likely need to change the network settings on your computer. Please carefully follow these steps:

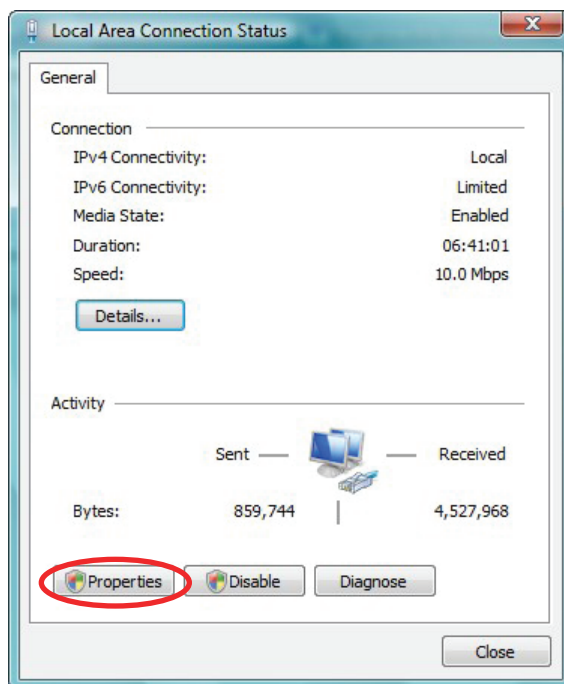
1. Plug the Gateway into a 120V outlet.
2. Connect your PC to the Gateway with the included Ethernet Patch Cable.
 - 2.1. If you need a longer cable, any CAT V cable with RJ45 jacks may be used.
 - 2.2. A cross-over cable can be used to direct-connect to the computer, but it is not necessary. The Gateway automatically senses the cable configuration.
3. Open your web browser (Internet Explorer, Firefox, Chrome, etc.)
 - 3.1. In the address bar type in: `http://192.168.7.2/Footprints.html`
 - 3.2. FootPrints 5000 Dashboard should load (Note: could take up to 1 ½ minutes to load)
4. If you get a “Cannot Open Webpage” or “File Not Found” error on your browser, then you will need to change the IP of your PC.
 - 4.1. Go to Control Panel/Network and Sharing Center (accessed from Start Menu)
 - 4.2. Click on Manage Network Connections.



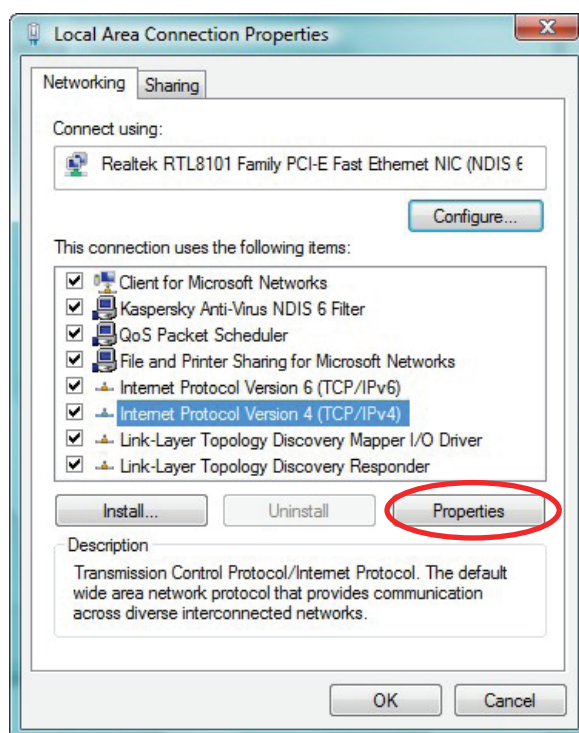
4.3. Click on Local Area Connection



4.4. Click on Properties

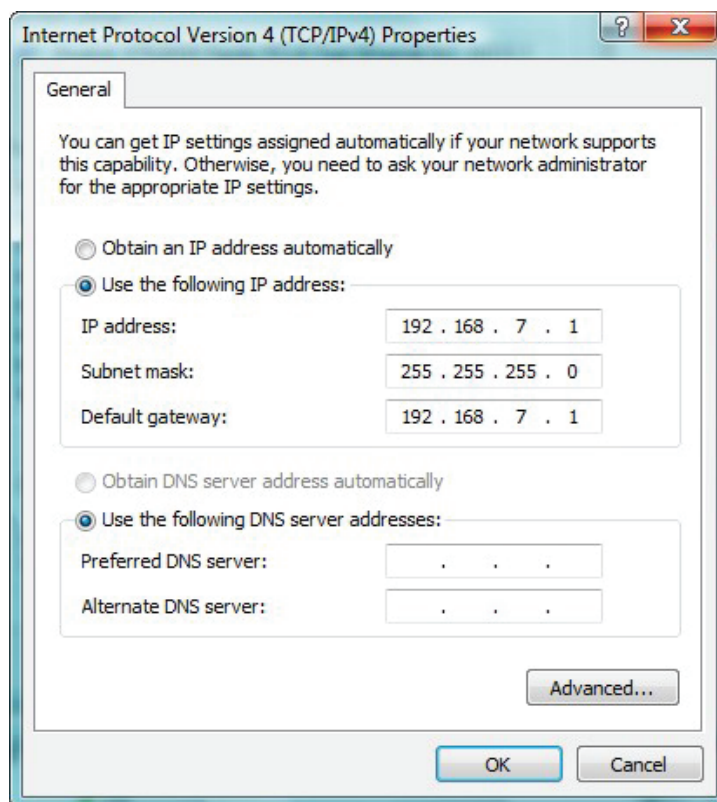


4.5. Highlight Internet Protocol Version 4 (TCP/IPv4). Click on “Properties”



4.6. Click “Use the following IP address” and fill in as shown:

- 4.6.1. IP Address 192.168.7.1
- 4.6.2. Subnet mask: 255.255.255.0
- 4.6.3. Default Gateway: 192.168.7.1



4.7. Click OK

4.8. Restart your browser and type: <http://192.168.7.2/Footprints.html> into the address bar.



4.9. Footprints 5000 Dashboard should be displayed

4.9.1. Read and follow Footprints 5000 Help File.

4.9.2. If Footprints 5000 does not come up, please contact your network administrator, IT department or trained computer professional.

TED (Energy, Inc.) can not help you troubleshoot network issues.

4.10. To make your computer work properly again on your network, it may be necessary to restore the previous settings.