



EZ SIM

BILLING ANALYSIS SOFTWARE

Installation-- Frequently Asked Questions

Q. I ran the installation program and got the sunburst icon on the desktop. But where is the executable file? And where is the manual?

The installation package contains three install files -- one each for the program template, the manual and the tutorial. You can install each separately as you wish. The default location for the manual is in the folder "C:\Ezsim\Manual". EZ Sim itself runs under Excel. That means it is a ".xlt" file, not a ".exe" file. Usually you want to install the template in the folder that Excel uses for other templates. The installation program prompts you for a location, but actual location may vary depending on how you have set up your operating system. If in doubt, use the "Start" "Find" command and search for "ezsim*.xlt". You should be able to find the template file and place it in your chosen folder. If you change location, you may also need to edit the location for the sunburst icon. Editing is accomplished with a right-click on the icon. When installed, you should be able to start EZ Sim in two ways -- either from the sunburst icon on the desktop or else start Excel and chose the "File" "New" command to select the EZ Sim template.

Q. One month, February in this case, is missing from the graph even though I entered billing data. Other months seem to be graphed in the wrong places. Is something wrong with the data?

EZ Sim expects to find one and only one of each month, ie) only one Dec, one Jan, etc. Usually this works out, but there can be problems when read dates overlap such that two midpoints fall within the same month. Then EZ Sim skips the second reading. Or a short month like February can get skipped entirely. It's hard finding an automatic algorithm that is bomb proof. My suggestion: Unhide the BillCalc page and manually edit the month numbers in column L to the appropriate sequence. This will work fine without needing to change other calculations. However, be aware that the revised BillCalc page is not saved when you save a summary file (xfile). So you will need to save the whole working file.

Q. I get an error message like "Cannot compile" when I open the program. What is wrong?

Alas, Microsoft included undocumented program changes when they created Excel 2000. Our original program was written for Excel '97. So if you try to use the '97 version with Excel 2000, that's the kind of error message you will see. The current EZ Sim template (version 6) works with either version of Excel. So if you change to Excel 2000, you will need to upgrade the EzSim template. Sorry. But upgrades are half-price to registered users -- see our on-line store.

Q. What else is different about Excel 2000?

One other little detail -- Microsoft changed the location for template files. Under Excel '97, we stored templates in a folder like "C:\Program Files\Microsoft Office\Templates". Under Office 2000, the templates reside in a folder like "C:\Windows\Profiles\user_name\Application Data\Microsoft\Templates" where you need to put in your own user name. When you install Office 2000, it will automatically shift the old '97 templates to the new location. What is your user name, you ask? Hard to say since the Office installation program sets it up for you. The best option is to use the "Browse" option as EZ Sim installs itself to make sure that the EZ Sim template gets assigned to your preferred folder name.

Q. The macro buttons on the "Customer Information" page don't work. What happened?

These buttons add other files (weather, data, etc.) to EZ Sim. To do these operations, the EZ Sim file must have a valid filename. That's why, when you first start a New file, the first thing it does is prompt you for a filename. So save the file as *.xls and try again.

I prefer to set up Windows so that those extensions are visible. To show all files and file name extensions in My Computer or Windows Explorer, click the folder you want to look at. On the View menu, click Folder Options. Click the View tab, and then click Show all files. If you want to see all file name extensions, click to clear the Hide file extensions for known file types check box.

Q. I'm getting error messages, like "Exceeds data table", in the temperature field when I enter the billing data. What's wrong?

You are entering billing dates that exceed the dates available in the weather data. You have several choices:

(1) Use billing data from an earlier time period where you have concurrent weather data.

(2) Extend the weather data -- see how to make a weather file below. Or purchase a more recent weather file from our weather file service at EZ Sim on-line store.

(3) If you know the daily temperature data, you can manually enter these. Remember enter data in the yellow cells only!

(4) Last resort. Change the dates back to a previous year for which you should have data. Not recommended because you lose the value of having actual, concurrent weather. But the previous year's weather should be ballpark and gives you a chance to check how the modeling is working.

Q. The tutorial program runs off the screen or has funny blobs. What is wrong?

It's difficult to configure the tutorial program for all conceivable display monitors. So we set it up for the most common configuration. You may need to make some adjustments on your display. Select Programs> Settings> Control Panel> Display> Settings. Set colors for "256 Colors" and screen area for at least "800 X 600 pixels".

Q. How do I make my own weather files?

The best way to start is to open up an existing weather file. That way you will have the correct format. You will see that the first five columns are day number, year, month, day, and average temperature. And these just run down the page for as long as you have data. So to add more recent data, just go to the bottom of these columns and add data sequentially. Save the file as a *.csv file (or *.xls). Then use the Update Weather macro button on the Customer Information page to add the new data.

If you want to add a new locality, the process starts the same. Add the local day number, year, month, day, and average temperature into the first five columns as above. Then look at the table over to the right. You will need to update the long-term average weather data too. Change the site name, add the monthly averages for temperature, solar irradiation and humidity ratio. Then save the file and load as described above.

Where does one get the weather data? You're on your own, Average daily temperature should be available from a variety of sources. The average solar and humidity is available from NREL for selected US cities. You can pick a nearby one with similar weather; these variables do not have to be as exact.

Q. I used the quick "tweakers" on the Tuning Graph page to set up my model. Now the basecase and comparison case show different energy consumption. What happened?

Hey, read the manual -- practice the tutorial. The two cases will not agree if any of the "tweakers" are active. The idea is to use the tweakers temporarily to get an idea of the major end uses and their interactions. Once you get an idea of how you want to adjust the end uses, you hit the "Set Targets" button and move on. That will reset the tweakers. Then you jump over to the Detailed Description page and set up the permanent, physical parameters to match the targets you have created. Why did we make it so complicated? Because there are multiple physical parameters that could give you the desired major end use adjustment. You have to decide which seem the most likely -- or leave the question as alternative hypotheses to be resolved during a site visit.

Q. I set up this building with gas heat, but it still shows a small amount of electricity for space heating. How come?

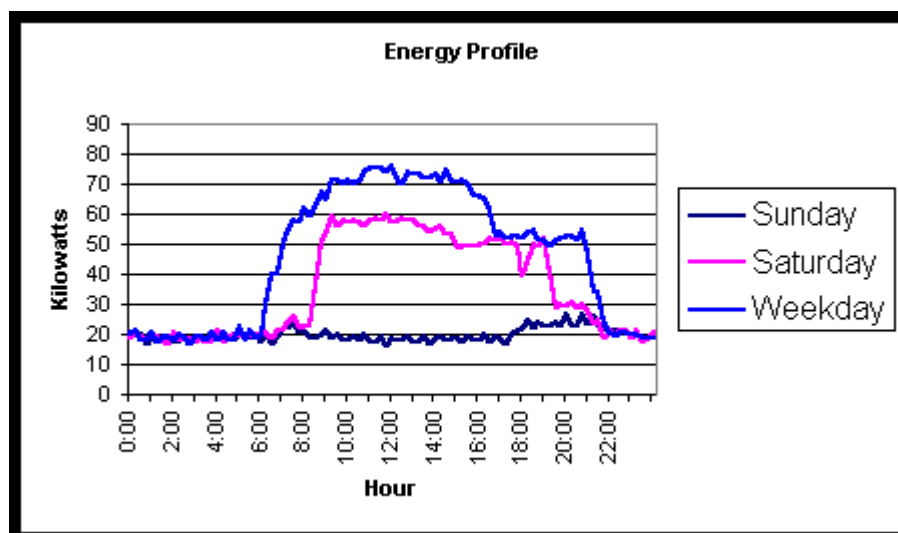
The EZ Sim default assumes that there is a little electricity used for vent fans, etc. Go to the Detailed Description page, look under Third Stage Heating. Enter zeros for Fuel Heat Electric Auxiliary on line 145.

Q. I'm trying to tune this building but the bills show heating usage drops off as temperatures increase and the model doesn't act that way. What do I do?

This is a familiar problem -- the balance temperature of the building doesn't match, the bills show a balance at about 55 degrees. One way to fix is to set the heating setpoints to 55 degrees. What does this mean? Even though the thermostats may be actually set for 72, the building is acting as if it were set for 55. This could be because there is unconditioned space (storage, etc.) or the internal gains are not being vented out. So here are some things to consider: (1) drop heating setpoint (2) Decrease ventilation rate? (3) Change lighting use factor or plug loads in order to increase internal gains.

Q. How do I use short-term logged data with EZ Sim?

Good question, this is a difficult project that illustrates the detective approach. Figure out what you think you can determine from the info at hand and see what it implies. Let's look at an example of what we get from the datalogger. In this



case, we logged total consumption at the service entry for a few days.

The logs give us operating hours. The

building starts at 6:00 AM. Some lighting shuts down at 5:30 PM, but operations continue until 11:00 PM. There are partial operations on Saturday but not on Sunday. So you can figure out what are average operating hours.

Notice that we have an idea of usage during unoccupied periods. We can check this against what EZ Sim is computing. At the bottom of the Detailed Description page, down at line 215, is a table showing the expected light and plug loads. You can adjust the Unoccupied Usage factors (lines 63 and 64) to get agreement with the monitored data. Similarly, the loads during occupied periods can be checked although you can expect that some HVAC consumption is occurring too. You might need to separate these loads with submetering.

Q. What building type do I use for a church? Or a restaurant?

Don't be too attached to the building type, remember these are just generic types to use as a starting place. You can start with anything, office say, and adjust for what the actual usage seems to be. For a church, a lot depends on how much they use it. Do they have childcare, administrative offices, lots of meetings? Or do they shut down except on Sunday? You will be probably be adjusting hours empirically anyway to match the bill, so it doesn't much matter what you start with. In this case, it looks like they don't use the building much (very low lighting use factor, and little plug loads). But they leave the heating on throughout the week.

Likewise for a restaurant, start with the retail type and adjust hours, lights and plug loads as needed. Older dimly-lit taverns could have low energy use. While fast food places, with small square footage, have very high usage per square foot. So there can be wide variation between businesses. Obviously there will be cooking loads. But these are usually vented out, so treat as external (not internal) loads. Look for high ventilation rates. Check the EZ Sim library -- we may have a similar example posted.

Q. This building has two meters. What do I do about demand kW?

As a rule, generally sum the meters for both kWh and kW. That assumes that the kW spike of both meters occurs at the same time. No real evidence that this is so. You may know otherwise. The reason for choosing the maximum meter would be if you were sure that the kW spikes do not occur at the same time. For example, if you know that the small meter is for parking lot lights, that would be grounds to ignore it and just concentrate on the building's kW. In this case, given the variation in the small meter's kW, it doesn't seem to be a constant load, like parking lot lights. Both meters seem to have some seasonality, which is reason to add the meters together

Q. The Demand Graph page shows the typical demand as a flat line, why is that?

EZ Sim seeks to find a winter maximum and a summer maximum. Unfortunately, it's not very smart and needs help defining the seasons. You do this by adjusting the "Change Point" on line 29 of the Demand Graph page.

Q. I'm proposing to insulate the walls but the Proposal Report shows an increase in electric consumption. Why?

Strange but true -- commercial buildings behave differently from residential ones -- they tend to be load-dominated, not skin-dominated. When you insulate, you are trapping heat inside. Good idea during winter but during the summer there is a corresponding increase in air conditioning. Take a look at the end uses on the Proposal report. The area graph at line 42 shows the increase in cooling (light blue area). The same in the bar chart of annual end uses down at line 61.

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