

Questions and Answers from SAM webinar on electricity rates

Can you upload PV hourly production data generated from a different program, similar to the way you can input hourly load data?

In the detailed PV model or PVWatts, SAM generates the PV production and you can't override that. However, we do have a "Generic System" technology option that lets you input data (hourly or a constant capacity factor), and then you can access all of the financial models normally available in SAM. So to input PV production from another program and use SAM's financial models, you could use the Generic System model to do that.

Do you have to build your own energy charges table?

SAM offers the flexibility for you to do so if you want, but you can also download data directly from the OpenEI database through SAM, which pulls in the energy charges table directly.

1. Which year weather data that has be preloaded into the SAM ? 2. Is there any way to interface the individual energy sources together to satify a load in SAM 3. How do I select the electricity rate option for a residential and commercial load in Ontario, Canada ? (My main question is about the voltage and power selection)

1.) SAM assumes the year begins on a Monday, so it is important to align your load data with this convention in order to properly calculate energy and demand charges with week/weekend components. We may add additional flexibility in the future. 2.) Regarding coupling sources, SAM will apply the renewable energy system contribution to the load, and then the rest will come from the electric grid. You can also add a battery storage system. 3.) We don't maintain the URDB, but it may have some Canadian rates, if not you can manually enter your rate.

How often generally are the utility rates in SAM updated?

The utility rates that SAM imports are from the OpenEI Utility Rate Database. Rates in that database are updated occasionally by users or analysts, though there is no fixed schedule. I recommend using these rates as a starting point, and if needed, verify the specific charges with your latest rate sheet and update if needed.

In Brazil we have monthly total excess rolled over to next month. There isn't a sell rate at end of year. Instead, these credits expire after 60 months (5 years). How can I model that?

Thanks for your question. At the moment, we cannot model the 5 year expiring credits. You would unfortunately need to post-process annual production, load and excess calculations to determine this through the lifetime of the system. Additionally, without modeling a series of 5+ years of real data to account for inter-annual variation, a single TMY file would not capture the anticipated variation between years although nor would it capture inter-annual load variation. SAM scripting might also be used to examine multiple years of resource and load variation.

Is there a way to only add monthly load data, without hourly data or normalising hourly data?

Unfortunately, SAM requires at least hourly load data. If you only have monthly load data, we would recommend that you either download a typical load profile for your location from the OpenEI database (as Paul showed) or use the Load Profile Calculator, and then scale the load to your monthly data.

Do the rates on these rate sheets that are used as inputs into SAM typically include all applicable taxes as well?

The SAM team doesn't maintain the Utility Rate Database, so unfortunately we don't always know exactly how the rate has been entered. If the tax is part of the listed utility rate, it could be included in the database, but if it is listed as a separate footnote or something else, then it may not have been included. When downloading a specific rate from the URDB, we generally recommend that you also download the rate sheet from the utility and double check the information. If taxes haven't been included, you can account for them as part of the fixed monthly charge or part of the rate, depending on how they're formatted.

Weather data question: For a specific address, there is TMY data available, but not TMY2 and TMY3. What is the difference between the address specific TMY with the regular TMY2, or TMY3?

The TMY2, TMY3, and the TMY that you access through the download button all use similar algorithms to come up with a "typical" weather year, but they are based on different underlying data. The TMY from the Download button is based on NREL's latest National Solar Radiation Database data. The new TMY was created with a much higher spatial resolution than the TMY2 or TMY3 files, which are located at various points throughout the US. There is more detail about the weather data and links to the documentation for the TMY2 and TMY3 and TMY files on the SAM Website, on the Weather Data page.

I am trying to make a project in SAM whereas 3rd party PPAs are not allowed. How do I model a Solar Lease structure with SAM?

We have a separate financial model for Solar Lease structures called the "Third Party Ownership" model that allows you to represent Solar Leases and 3rd party PPAs. There is a webinar on that on the SAM website Webinars page.