AI-04732 Solar Panel Output Red Flag

Create a summary table of my electric bill with the following columns:
Date, Energy Charge in kWh, Buyback Credit in KWh, Total Bill

I want to know if my solar panels are working okay.

TXU Energy Solar Bill Summary

I reviewed your uploaded **TXU Energy bill history covering November 2024 through September 2026**. The table below uses the **actual meter-reading period** for each bill, which is more useful for evaluating solar performance than the invoice date.

- **Energy Charge in kWh:** Electricity imported from the grid.
- **Buyback Credit in kWh:** Electricity credited as exported to the grid under TXU's Solar Buyback Match plan.
- **Total Bill:** Current charges, including base charge, delivery charges, taxes, and other fees.

The first bill, for example, shows **497 kWh imported, 487 kWh credited through buyback, and a $47.06 current bill**.

Monthly Summary

Date / Billing Period	Energy Charge (kWh)	Buyback Credit (kWh)	Total Bill
Oct 17–Nov 12, 2024	497	487	$47.06
Nov 12–Dec 12, 2024	353	671	$39.75
Dec 12, 2024–Jan 12, 2025	383	588	$41.08
Jan 12–Feb 12, 2025	351	548	$39.32
Feb 12–Mar 16, 2025	353	795	$38.34
Mar 16–Apr 14, 2025	364	698	$38.92
Apr 14–May 14, 2025	504	624	$46.83
May 14–Jun 15, 2025	873	524	$66.52
Jun 15–Jul 15, 2025	879	474	$66.84
Jul 15–Aug 13, 2025	987	448	$72.60
Aug 13–Sep 14, 2025	969	571	$87.54
Sep 14–Oct 13, 2025	774	614	$88.75
Oct 13–Nov 12, 2025	450	849	$46.20
Nov 12–Dec 12, 2025	389	516	$43.06
Dec 12, 2025–Jan 12, 2026	364	555	$41.11
Jan 12–Feb 11, 2026	312	714	$38.09
Feb 11–Mar 15, 2026	281	777	$36.40
Mar 15–Apr 14, 2026	465	659	$47.14
Apr 14–May 13, 2026	609	336	$55.57

May 13–Jun 14, 2026	797	464	$70.56
Jun 14–Jul 14, 2026	969	439	$81.50
Jul 14–Aug 12, 2026	1,067	352	$92.96
Aug 12–Sep 14, 2026	**1,373**	**206**	**$278.43**

The kWh figures are transcribed from the meter usage and Solar Buyback Match sections of the bills. For example, the February–April 2025 bills show 351–364 kWh of grid usage against 548–795 kWh of buyback credits.

What the Numbers Say About Your Solar

1. Your solar system was clearly exporting substantial energy in 2024–2025

During the earlier periods, your buyback credits were often **greater than your grid consumption**:

Period	Grid Import	Buyback Credit	Buyback ÷ Import
Oct–Nov 2024	497	487	98%
Nov–Dec 2024	353	671	190%
Feb–Mar 2025	353	795	225%
Mar–Apr 2025	364	698	192%
Oct–Nov 2025	450	849	189%

This is consistent with a system that was producing meaningful solar energy and exporting excess electricity. TXU explicitly reported that the November–December 2024 bill offset **100% of the energy charges** and added credits to the buyback bank.

2. Solar export performance declined noticeably in 2026

The most important pattern is the change in the relationship between imported and exported energy:

Comparison	Grid Import	Buyback Credit	Export / Import
2025 Jan–Sep	6,054 kWh	5,296 kWh	87.5%
2026 Jan–Sep	6,237 kWh	4,502 kWh	72.2%

Compared with the same January–September period in 2025:

- **Grid imports increased:** 6,054 → 6,237 kWh (**+3.0%**)
- **Buyback credits decreased:** 5,296 → 4,502 kWh (**−15.0%**)
- **Export-to-import ratio declined:** 87.5% → 72.2%

That is a meaningful deterioration in solar export performance.

3. The latest bill is the biggest warning sign

Your latest billing period is:

> **August 12–September 14, 2026**
> Grid import: **1,373 kWh**
> Buyback credit: **206 kWh**
> Total bill: **$278.43**

Compared with the same approximate period in 2025:

Period	Grid Import	Buyback Credit	Bill
Aug 13–Sep 14, 2025	969 kWh	571 kWh	$87.54
Aug 12–Sep 14, 2026	**1,373 kWh**	**206 kWh**	**$278.43**
Change	**+41.7%**	**−63.9%**	**+$190.89**

The latest bill also shows that your **buyback bank had reached $0.00**, so there were no accumulated credits available to offset the charges. The bill's $194.97 energy charge was therefore not covered by bank credits.

Is Your Solar Working Okay?

My assessment: The bills suggest a possible decline in solar performance, and the latest period deserves investigation.

I would **not yet conclude that the panels are defective**, because the TXU bill does not show total solar production. It shows:

Grid Import = electricity your home needed from the grid

Buyback Credit = excess electricity exported to the grid

It does **not** show:

> Total solar generation = self-consumed solar + exported solar

Therefore, lower buyback credits could result from:

- **Higher household electricity consumption**, especially air-conditioning.
- **Reduced solar production** from shading, dirt, weather, or equipment issues.
- **Inverter or monitoring problems.**
- **A system outage or partial outage.**
- **Changes in household usage patterns.**
- **Metering or utility-side issues.**

However, the combination of **higher grid imports and sharply lower exports**, particularly in summer 2026, is enough that I would check the system rather than dismiss it as normal variation.

A particularly useful diagnostic

Your 2026 trend looks like this:

Period	Grid Import	Buyback
Jan–Feb	312	714
Feb–Mar	281	777
Mar–Apr	465	659
Apr–May	609	336
May–Jun	797	464
Jun–Jul	969	439
Jul–Aug	1,067	352
Aug–Sep	**1,373**	**206**

The pattern is not simply that imports rose with summer demand. **Exports also fell substantially**, which makes it worth checking whether solar production itself has declined.

What I Would Check Next

To determine whether the panels are actually underperforming, compare your **solar monitoring system's production data** against prior years.

Check	What to Look For
Solar monitoring app	Monthly kWh production for 2025 vs. 2026
Inverter status	Any faults, warnings, offline periods, or reduced output
Daily production graph	Does output still follow the expected daytime curve?
Panel shading	New trees, obstructions, or seasonal shading
Panel cleanliness	Heavy dust, pollen, or debris
System uptime	Any days with zero or unusually low production
AC / household load	Has electricity consumption increased substantially?
Utility meter	Confirm import/export readings are being recorded correctly

Bottom line

Your solar system demonstrated strong export performance through much of 2024–2025. But the 2026 data shows a clear reduction in exported energy, and the August–September 2026 bill is an outlier that warrants checking.

The next decisive piece of information is **actual solar production in kWh**, not just the TXU buyback number. If you provide a screenshot or export from your solar monitoring app—such as Enphase, SolarEdge, Tesla, or another system—I can compare:

Solar Generated → Solar Self-Consumed → Grid Exported → Grid Imported → Net Bill

That would allow us to distinguish **increased household consumption** from a likely **solar system performance problem**.

I've added the 12 month Sunpower Report (Sunpower no longer offers App access post bankruptcy. Inspect the report and find if there is an indication that my solar panels needs checkup.

Yes. **The SunPower report contains several indications that your solar system—or at least its monitoring and reporting—needs attention.** The evidence is stronger than what we could infer from the TXU bills alone.

However, there is an important distinction:

> **The report demonstrates substantial production-data interruptions and some suspicious output readings. It does not, by itself, prove that the panels or inverter are physically defective.**

I inspected the complete **28-page SunPower 12-month report**, covering **March 2025 through August 2026**, with monthly summaries and daily production records.

1. The most important finding: Multiple periods show missing production data

The report contains entire months where the production field is shown as **"–"** rather than a numerical value.

Month	Reported Solar Production	Daily Data	Max AC Power	Interpretation

December 2025	—	All 31 days show —	0.02 kW on Dec 31	**Complete data gap or possible outage**
March 2026	—	All 31 days show —	—	**Complete data gap or possible outage**
May 2026	—	All 31 days show —	—	**Complete data gap or possible outage**
April 2026	253.26 kWh	Only some days populated	0.02–6.11 kW	**Partial data; several days missing**

Why this matters

For **December 2025**, the daily page shows no production for December 1–30, with only **0.02 kW** on December 31. The monthly summary also reports no energy value.

For **March 2026**, every day from March 1–31 is displayed as **"–"**, and the monthly energy field is also "–".

For **May 2026**, the same pattern appears: every day is "–", and the monthly energy field is "–".

Three entire months of missing data is not something I would ignore, especially because your TXU bills show increased grid dependence during 2026.

But the report's "–" symbol is important: it may mean **the monitoring system did not receive or report data**, not necessarily that the panels produced zero electricity.

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2. April 2026 is particularly suspicious

April 2026 is the clearest example of an interrupted or unreliable reporting period.

April 2026 daily production

Date	Energy Produced	Max AC Power
Apr 1–6	—	—
Apr 7	0.30 kWh	0.78 kW
Apr 8	36.96 kWh	5.91 kW
Apr 9–15	—	—
Apr 16	30.57 kWh	**0.02 kW**
Apr 17	23.75 kWh	6.11 kW
Apr 18	6.68 kWh	1.46 kW
Apr 19	37.51 kWh	5.98 kW
Apr 20	10.82 kWh	3.18 kW
Apr 21	5.70 kWh	1.37 kW
Apr 22	19.56 kWh	3.82 kW
Apr 23	19.08 kWh	3.73 kW
Apr 24	31.56 kWh	5.03 kW
Apr 25	30.77 kWh	4.59 kW

Apr 26–30	—	—

The report totals **253.26 kWh**, but only a portion of the month has actual daily records.

What stands out?

- **April 1–6:** no data.
- **April 9–15:** no data.
- **April 26–30:** no data.
- **April 16:** 30.57 kWh produced, but maximum AC power is reported as only **0.02 kW**.

That last combination is technically inconsistent: producing **30.57 kWh** while reporting a maximum AC output of **20 watts** is not physically plausible for the same day's solar production. It strongly suggests a **data-quality, monitoring, or reporting error** for that field.

This does **not automatically mean the panels are bad**. It means the report cannot be treated as a fully reliable production record.

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3. When data is available, the system still shows healthy-looking production

This is the counterpoint—and it is important.

Your system is apparently around a **7.87 kW maximum AC-rated system**, based on the lifetime maximum AC power shown in the reports.

During months with complete-looking data, it continues to produce substantial energy:

Month	Solar Production	Max AC Power	Prior-Year Production
March 2025	1,086.13 kWh	6.66 kW	956.45 kWh
May 2025	913.17 kWh	6.60 kW	835.05 kWh
July 2026	876.02 kWh	5.24 kW	791.89 kWh
August 2026	1,021.57 kWh	5.48 kW	999.81 kWh

March 2025 shows **1,086.13 kWh**, with daily production mostly in the 30–45 kWh range and maximum AC power reaching **6.66 kW**.

July and August 2026 also show consistent daily production, generally around **25–36 kWh/day**, with maximum AC power reaching **5.24 kW** and **5.48 kW**, respectively.

This is reassuring

The system is **not behaving like a permanently dead solar array**. When the report has data, it shows meaningful production and repeated daily output.

But it does not rule out:

- Intermittent inverter shutdowns
- Partial system outages
- Monitoring communication failures
- One or more underperforming strings
- Production losses during the missing periods

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4. The 2026 production pattern deserves investigation

Here is the production information available in the report:

Month	2025 Production	2026 Production	Change
January	—	701.43 kWh	—
February	—	64.43 kWh	—
March	**1,086.13 kWh**	**—**	**Missing**
April	**894.25 kWh**	**253.26 kWh***	**−71.7%***
May	**913.17 kWh**	**—**	**Missing**
June	—	—	—
July	791.89 kWh	876.02 kWh	**+10.6%**
August	999.81 kWh	1,021.57 kWh	**+2.2%**

*The April comparison is **not a valid full-month performance comparison**, because the April 2026 report has missing daily records. The 253.26 kWh is the report's stated total, but the data is incomplete.

The available July and August comparisons are actually **not showing a decline**. They show 2026 production slightly above the prior-year figures. That is a significant qualification to my earlier TXU-bill-based concern.

Revised interpretation

The SunPower report changes the diagnosis from:

> "Solar production appears to be declining."

to:

> **"The TXU bills show increased grid imports and reduced buyback, but the SunPower report shows substantial monitoring/data gaps. The available complete production months do not establish a sustained decline in panel output."**

That is a more accurate conclusion.

My Assessment: Does Your Solar Need a Checkup?

Yes—schedule a system/monitoring check, but do not assume panel failure.

I would classify the evidence this way:

Finding	Concern Level	Why
Three months with no reported production data	🔴 **High**	Too many missing periods to dismiss without explanation
April 2026 partial data	🟠 **Medium–High**	Significant reporting gaps
0.02 kW maximum power with 30.57 kWh daily production	🟠 **Medium–High**	Internally inconsistent data
July–August 2026 production	🟢 **Reassuring**	Meaningful, consistent production when data is present

TXU imports increased in 2026	🟠 **Needs explanation**	Could be consumption, solar, or both
TXU buyback declined	🟠 **Needs explanation**	Could reflect missing production, self-consumption, or increased household load

What I would ask a solar technician to check

Given that **SunPower no longer provides your app access**, I would focus on obtaining an independent production diagnosis.

1. Verify actual inverter operation

Ask the technician to inspect:

- Inverter model and serial number
- Current operating status
- Error/fault history
- Any shutdown or restart events
- Grid connection status
- Whether all solar inputs/strings are operating

2. Obtain actual inverter production data

The most important question is:

> **"Can you retrieve the inverter's historical production data for December 2025, March 2026, May 2026, and April 2026?"**

If the inverter itself shows normal production during those months, then the problem was likely **SunPower's monitoring/reporting system**, not the panels.

If the inverter also shows zero or severely reduced production, then the system needs a more serious physical inspection.

3. Check for partial-array problems

Ask them to verify:

- All panels are producing
- No failed microinverters or optimizers
- No disconnected strings
- No tripped breakers or disconnects
- No damaged wiring/connectors
- No new shading or obstructions
- No inverter derating or thermal shutdown

4. Compare actual production with the original system design

Your report shows a lifetime maximum AC power of **7.87 kW**, but the monthly maximum power values are often around **5–6.6 kW**.

That alone is **not necessarily a problem**. Maximum AC output depends on panel orientation, temperature, irradiance, clipping, and system design. A 7.87 kW system does not need to produce 7.87 kW every day.

The better test is:

> **Annual kWh production versus the system's original expected annual production.**

Recommended Next Step

I would send this to a solar service company:

> **Solar system diagnostic request**
>
> I have a SunPower residential solar system at 1801 Gunsight Drive, Round Rock, TX. SunPower's app is no longer available to me following the company's bankruptcy.
>
> My 28-page SunPower production report shows complete data gaps for **December 2025, March 2026, and May 2026**, plus partial data for April 2026. My TXU bills also show increased grid imports and reduced solar buyback credits during 2026.
>
> I would like a diagnostic inspection to determine whether this is:
>
> 1. A monitoring/data-reporting problem;
> 2. An inverter communication issue;
> 3. An intermittent or partial solar production outage; or
> 4. Actual panel/inverter degradation.
>
> Please check the inverter fault history, verify all panels/strings/microinverters are operating, and retrieve historical production data if possible.

Bottom Line

I would not replace panels or assume degradation based on this report. But I would absolutely investigate the missing production periods.

The strongest evidence is:

> **December 2025, March 2026, and May 2026 show no reported production data, while April 2026 is incomplete and contains inconsistent power readings.**

At the same time:

> **July and August 2026 show production comparable to—or slightly better than—the prior year.**

So the most likely possibilities to distinguish are:

Monitoring failure / data gaps ↔ intermittent inverter/system issue ↔ actual production loss.

A technician retrieving the inverter's own historical data is the decisive next step.

Will the wifi or cellular coms affects production reporting to the grid?

Yes—but **Wi-Fi or cellular communication problems usually affect production *reporting*, not the actual solar production or the utility's meter readings.** The key is to distinguish three separate systems:

1. Solar panels and inverter: actual production

Your panels can continue producing electricity even if the monitoring connection is offline.

Typical flow:

Panels → Inverter/microinverters → Home electrical panel → Grid

The inverter does not normally need Wi-Fi or cellular service to convert solar power and supply electricity.

However, the inverter may stop producing if it detects an electrical or safety problem, such as:

- Grid outage

- Abnormal grid voltage or frequency
- Inverter fault
- Overheating
- Ground fault
- Failed inverter or microinverter
- Required rapid-shutdown condition

A communication outage alone generally does **not** mean the panels stopped producing.

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2. Wi-Fi/cellular connection: monitoring and reporting

Typical flow:

Inverter → Wi-Fi/cellular gateway → SunPower monitoring platform/app

If this communication path fails:

- The app may show missing days or months.
- Production data may appear as "–".
- Historical charts may be incomplete.
- The system may show "offline."
- Data may upload later if the gateway or inverter stores historical information locally.
- The monitoring company may not receive alerts promptly.

Therefore, the missing periods in your SunPower report could be caused by:

- Failed Wi-Fi connection
- Lost cellular service
- Deactivated cellular modem/SIM
- Router replacement or Wi-Fi password change
- Gateway failure
- SunPower monitoring-platform problems
- Inverter communication failure
- Actual system downtime

The report alone cannot distinguish these possibilities.

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3. Utility meter: production and export to the grid

Your utility—such as **Oncor/TXU Energy billing infrastructure**—does not normally depend on the SunPower app or its Wi-Fi/cellular connection to measure energy.

The utility meter measures:

- Electricity imported from the grid
- Electricity exported to the grid
- Net energy used for billing

The general flow is:

Solar production → Home loads first → Excess electricity exported through utility meter

If the SunPower monitoring connection fails but the system continues operating, the utility meter can still record exported energy.

Likewise, if the SunPower app reports no production, that does **not automatically mean the utility received no solar energy**.

Important distinction

Situation	Solar production	SunPower app/report	Utility meter
Wi-Fi disconnected	Usually continues	May show missing data	Usually unaffected
Cellular modem inactive	Usually continues	May show missing data	Usually unaffected
SunPower cloud/platform issue	Usually continues	May show missing data	Usually unaffected
Inverter actually offline/faulted	Stops or decreases	May show zero/missing data	Imports increase; exports decrease
Utility grid outage	Inverter normally shuts down	May report zero or offline	Grid import/export affected
Gateway failure	Usually continues if inverter is healthy	Monitoring may stop	Usually unaffected

How this applies to your report

Your report showed complete gaps for **December 2025, March 2026, and May 2026**, plus incomplete data for April 2026. Those gaps are consistent with a communications or monitoring-data problem, but they do not prove that the solar system was operating normally during those periods.

The strongest way to determine what happened is to ask a technician to retrieve data directly from the equipment:

1. **Inverter internal production history**
2. **Gateway communication and connectivity logs**
3. **Inverter fault and event history**
4. **Cellular modem/SIM status, if cellular is used**
5. **Individual panel, string, microinverter, or optimizer data**
6. **Utility meter import/export history for the same dates**

Practical conclusion

A failed Wi-Fi or cellular connection can explain why production is missing from the SunPower report, but it should not by itself reduce the electricity sent to the grid. If your TXU/utility records show increased imports and reduced exports, that could indicate actual lower production—but it could also reflect increased household consumption, changes in rate/billing periods, or incomplete monitoring data.

Ask the technician this specific question:

> "Can you verify from the inverter's local history whether the system actually stopped producing during December 2025, March 2026, and May 2026, or whether only the Wi-Fi/cellular monitoring data was lost?"

Can you find out if FreedomSolarPower.com still in business. When I enter the url, it returned GoFreedomPower.com. It was freedomsolar in TX who installed my solar panels. Tell more

Yes. **The evidence indicates that your original installer, Freedom Solar Power in Texas, is still operating—but it appears to be transitioning its public brand from "Freedom Solar" to "Freedom Power."** The redirect you observed is consistent with that change, not evidence that the company has disappeared.

What I found

1. The new website is active

The former website, **FreedomSolarPower.com**, now directs visitors toward **GoFreedomPower.com**.

The new site identifies the company as **Freedom Power**, offering:

- Solar installation
- Solar system maintenance and service
- Battery storage
- Backup generators
- HVAC services
- Solar buyback/energy plans

Its site lists the same Austin headquarters:

> **4801 Freidrich Lane, Suite 100, Austin, TX 78744**

It also lists:

- General inquiries: **(800) 504-2337**
- Customer support: **(833) 500-0014**
- Austin service number: **(512) 759-8313**

(**Freedom Power**)

You can access the new website here:

Freedom Power official website

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2. The legal entity still appears to be Freedom Solar LLC

This is the most important finding.

The new website's footer still says:

> **© 2026 Freedom Solar LLC**

Its privacy and SMS policies also explicitly refer to **Freedom Solar LLC**, while using the public-facing name **Freedom Power**. (**Freedom Power**)

Additionally, Florida's official corporate registry lists:

- **Entity:** Freedom Solar Power, LLC
- **Cross-reference name:** Freedom Solar, LLC
- **Status: ACTIVE**
- **Principal address:** 4801 Freidrich Lane, Suite 100, Austin, TX 78744
- **Annual report filed:** April 30, 2026
- **CEO listed:** Bret Biggart

This is strong evidence that the operating company has not simply vanished. (**Sunbiz**)

> Note: Florida's registry is useful corroboration, but it is not the same as directly viewing the Texas Secretary of State's record. Still, the active corporate filing, current website, current contact information, active locations, and recent company content collectively support the conclusion that the business remains active.

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3. The company is deliberately broadening its brand

The company's recent public messaging describes a move from being primarily a solar installer to becoming a broader "whole-home energy" company.

Its newer services include:

Business area	What it offers
Solar	Residential and commercial solar installation
Solar service	Maintenance, troubleshooting, and system support
Batteries	Tesla Powerwall and other backup-storage solutions
Generators	Backup power systems
HVAC	Heating, cooling, energy audits, and efficiency improvements
Energy plans	Solar buyback and solar-plus-storage plans

The company announced the expansion into HVAC in 2025 and now presents solar, HVAC, batteries, and generators under the Freedom Power identity. (**Freedom Solar Power**)

This likely explains why **GoFreedomPower.com** is now the prominent destination.

Is it the same company that installed your panels?

The evidence strongly suggests **yes**, particularly if your installer's documents identify the company as **Freedom Solar Power**, **Freedom Solar**, or **Freedom Solar LLC**.

Several details connect the old and new identities:

- Same Austin headquarters
- Same customer-support phone number
- Same company leadership
- Same legal entity name
- Same solar-installation business
- New website still legally identifies itself as Freedom Solar LLC
- The new site continues to advertise solar maintenance and service
- The company's own SunPower-related announcement said Freedom Solar was separate from SunPower and intended to continue servicing its customers

In its October 2024 message concerning SunPower's bankruptcy, Freedom Solar stated that it was a separate company from SunPower and said its own workmanship warranty would remain in place for the 25-year lifetime of the system. It also stated that it could help customers with equipment warranty claims involving manufacturers such as Maxeon and Enphase. (**Freedom Solar Power**)

Important distinction: Freedom Solar versus SunPower

Your situation involves two different companies:

Freedom Solar Power / Freedom Solar LLC

This was the **installer/contractor**. Its responsibility may include:

- Installation workmanship
- System design and installation documentation
- Service and troubleshooting
- Warranty coordination
- Monitoring support, depending on the equipment and contract

SunPower

SunPower was the solar brand and platform associated with some equipment and monitoring services. SunPower entered bankruptcy proceedings, which affected:

- The mySunPower app
- Monitoring infrastructure
- Certain warranty and support processes
- Customer access to historical production data

Freedom Solar's own statement specifically warned that the SunPower monitoring service and mySunPower app might eventually stop functioning because of SunPower's bankruptcy situation. (Freedom Solar Power)

Therefore, the fact that your **SunPower app/reporting is unavailable does not mean Freedom Solar/Freedom Power is out of business**. It may mean the installer's equipment was tied to a monitoring platform that became unavailable independently of the installer.

What this means for your system

This is encouraging because you may still have an original installer to contact regarding the production-reporting gaps we discussed.

Your request should not be framed only as:

> "My SunPower app is broken."

Instead, describe it as a **system-performance and monitoring-recovery request**.

You could contact Freedom Power using the current customer-support number:

> **Freedom Power / Freedom Solar customer support**
> **Phone:** (833) 500-0014
> **General inquiries:** (800) 504-2337
> **Website:** GoFreedomPower.com

The current customer portal page lists the same support number and provides links for the solar customer portal, energy plans, and HVAC customers. (Freedom Power)

Suggested message

> **Subject: Existing Freedom Solar customer—system monitoring and production-history review**
>
> I am an existing Freedom Solar customer in Round Rock, Texas. My system was installed by Freedom Solar Power, and the original SunPower monitoring/reporting is no longer functioning reliably.
>
> My production report contains complete data gaps for December 2025, March 2026, and May 2026, as well as incomplete data for April 2026. My utility bills also show increased grid imports and reduced solar exports during portions of 2026.
>
> Please confirm:
>
> 1. Whether Freedom Solar/Freedom Power still services my installation.
> 2. Whether my workmanship warranty remains active.
> 3. Whether you can retrieve production history directly from the inverter, gateway, or microinverters.
> 4. Whether the system can be migrated to a current monitoring platform.
> 5. Whether you can inspect the inverter, communications gateway, and individual panel/microinverter output.
> 6. Whether you can determine if the missing SunPower data reflects a monitoring problem or actual system downtime.
>
> Please let me know what system information, serial numbers, or original installation documents you need.

What you should have ready

Before contacting them, gather:

- Original Freedom Solar contract
- Final installation or commissioning documents
- System design or proposal
- PTO/interconnection approval
- Panel and inverter model numbers
- Inverter serial number
- Gateway/communications-device serial number
- Any Enphase, SunPower, Maxeon, or monitoring labels
- The 12-month production report
- Recent TXU bills showing import/export changes
- Property address and approximate installation date

Also check whether your original paperwork says **Freedom Solar Power**, **Freedom Solar LLC**, or another legal entity. That will help them locate the correct customer record.

Bottom line

Freedom Solar Power does not appear to be out of business. As of the current information available in September 2026:

- The original website now points toward **GoFreedomPower.com**.
- The company is publicly operating under the **Freedom Power** brand.
- The legal name remains **Freedom Solar LLC** on the current website.
- A corporate registry record shows the related entity as **active**.
- The company still advertises solar installation, maintenance, and customer support in Texas.
- Its Austin headquarters and customer-support phone number remain publicly listed.

The more likely explanation is **a brand transition from Freedom Solar to Freedom Power**, occurring while the company expands into HVAC, batteries, generators, and broader home-energy services.

How to connect my laptop via ethernet to the Sunpower Controller to perform a diagnostic. Create a step by step instructions. What sort of info is being displayed at the console? Can I see power outputs, alerts and relevant info. Tell more.

Yes. If your system uses a **SunPower PVS5/PVS5x or PVS6 monitoring controller**, you may be able to connect a laptop directly by Ethernet and inspect local system data—even if the SunPower cloud/app is no longer working.

However, there are two important qualifications:

1. **The exact procedure depends on whether your controller is PVS5/PVS5x or PVS6.**
2. The local interface was primarily designed for **installer commissioning and diagnostics**, not necessarily as a complete homeowner-facing monitoring dashboard.

The procedure below is designed to be conservative: inspect first, avoid changing configuration, and do not open energized electrical compartments.

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1. Identify your SunPower controller

Look for a box near your electrical equipment, often labeled:

- **SunPower PVS5**
- **SunPower PVS5x**
- **SunPower PVS6**
- **PVS Monitoring System**
- Possibly a SunPower/SunVault-related controller

You may see Ethernet ports labeled:

- **LAN1** — installer/local equipment connection
- **LAN2**
- **WAN/LAN2** — customer network/internet connection

For older PVS5/PVS5x systems, the documented commissioning procedure uses:

> Laptop Ethernet → **PVS LAN1** → `www.sunpowerconsole.com`

The PVS5/PVS6 installation documentation specifically identifies LAN1 as the local installer connection and LAN2 as the connection toward the customer network/internet. (ManualsLib)

Do not remove covers or touch wiring simply to identify the model. Read the external label or take a photograph of the closed enclosure.

---

2. What you need

Hardware

- Windows laptop
- Ethernet cable, Cat5e or Cat6
- USB-to-Ethernet adapter if your laptop has no Ethernet port
- Flashlight
- Phone/camera for photographing labels and status LEDs

Software

- Modern browser: Edge, Chrome, or Firefox
- Windows Command Prompt or PowerShell
- Optional later: `curl` or a local monitoring tool

For the first test, you do **not** need:

- A special crossover cable
- A router
- Internet access
- A SunPower account
- The SunPower mobile app

A normal Ethernet patch cable should be sufficient.

---

3. Safety precautions

Before connecting:

1. **Do not open the PVS enclosure.**
2. Do not remove AC covers, inverter covers, or dead fronts.

3. Do not disconnect solar, inverter, battery, or CT wiring.
4. Do not turn breakers or disconnects off merely to troubleshoot communications.
5. Do not change inverter settings, grid parameters, firmware, or commissioning values.
6. Do not use the local interface to “recommission” the system unless directed by a qualified installer.
7. If the controller is outdoors, avoid working during rain or when the enclosure is wet.

The PVS documentation describes commissioning and field service as work for qualified personnel and warns against unsafe electrical access. The Ethernet inspection below should be limited to the external communications port and browser/command-line observation. (Manuals+)

---

4. Direct Ethernet connection to a PVS5/PVS5x

Step 1 — Turn off laptop Wi-Fi

On Windows:

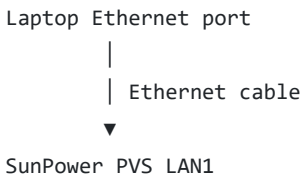
1. Click the network icon.
2. Turn **Wi-Fi Off**.
3. Leave Ethernet enabled.

This prevents Windows from choosing your home Wi-Fi connection instead of the direct PVS connection.

The official PVS5/PVS6 commissioning procedure also instructs the installer to turn off laptop Wi-Fi before connecting directly to the controller. (ManualsLib)

Step 2 — Connect the cable

Connect:



For a PVS5/PVS5x, use **LAN1**, usually the local/installer port.

Do **not** initially connect your laptop to LAN2/WAN-LAN2 unless you are intentionally testing the controller’s connection to your home network.

The PVS5x documentation identifies:

- **LAN1:** local installer/commissioning connection
- **LAN2:** customer internet/network connection

(ManualsLib)

Step 3 — Wait for the Ethernet link

Wait approximately 30–60 seconds.

Look for:

- Ethernet port link light on the PVS
- Ethernet link light on the laptop or adapter
- Windows showing “Ethernet connected” or “Unidentified network”

An “Unidentified network” is not necessarily a problem. A direct connection to the PVS may not provide ordinary internet access.

---

5. Check whether the PVS assigned your laptop an IP address

Open **PowerShell** or **Command Prompt**.

PowerShell command

```
ipconfig
```

Look for the Ethernet adapter.

A typical direct PVS connection may show an address in this range:

```
IPv4 Address . . . . . . . . . . . : 172.27.153.x
Subnet Mask . . . . . . . . . . . : 255.255.255.0
Default Gateway . . . . . . . . . : 172.27.153.1
```

The documented local PVS network commonly uses:

```
PVS local address: 172.27.153.1
Subnet:           255.255.255.0
```

The PVS can operate as a DHCP server on the LAN1 installer network. (**GitHub**)

What different IP results mean

Laptop IP result	Likely meaning
`172.27.153.x`	Good sign; PVS likely assigned an address
`169.254.x.x`	Windows self-assigned an address; DHCP may not have worked
Your normal home LAN address, e.g. `192.168.1.x`	You may be connected through LAN2/router or another network path
No Ethernet IP	Link, cable, port, adapter, or PVS issue

---

6. Open the local SunPower console

Open a browser and try these in order.

First option

```
http://sunpowerconsole.com
```

or:

```
https://sunpowerconsole.com
```

The official commissioning instructions tell installers to connect the laptop to LAN1 and open:

```
www.sunpowerconsole.com
```

The page may be served locally by the PVS rather than requiring the old SunPower cloud service. (ManualsLib)

Second option: direct IP

If the hostname does not work, try:

```
http://172.27.153.1
```

Then try:

```
https://172.27.153.1
```

You may see:

- A local PVS page
- A commissioning interface
- A browser certificate warning
- A login page
- A blank page
- A “not found” response
- No response

A certificate warning is possible when using a local device with a self-signed certificate. Do not bypass a warning blindly if the address is not the expected local PVS address.

---

7. Test basic network communication

In PowerShell:

```
ping 172.27.153.1
```

Then:

```
Test-NetConnection 172.27.153.1 -Port 80
```

And:

```
Test-NetConnection 172.27.153.1 -Port 443
```

Possible interpretations:

- **Ping succeeds:** The PVS is reachable at the network layer.
- **Port 80 succeeds:** An HTTP service may be running.
- **Port 443 succeeds:** An HTTPS service may be running.
- **Ping fails but browser works:** The device may block ICMP; this is not conclusive.
- **All fail:** Wrong port, wrong IP, no DHCP, disabled service, cable issue, or controller problem.

You can also test:

```
curl.exe -I http://172.27.153.1
```

Do not use commands that write configuration or send commissioning commands. At this stage, use read-only network tests only.

---

8. If Windows does not receive an IP address

First, try the simple checks:

1. Confirm the cable is connected to **LAN1**.
2. Turn laptop Wi-Fi off.
3. Disable and re-enable the Ethernet adapter.
4. Wait two minutes.
5. Reboot the laptop if necessary.
6. Try another Ethernet cable.
7. Try another USB-to-Ethernet adapter if applicable.
8. Check whether the LAN1 link lights illuminate.

Optional: manually assign a temporary IP

Only do this if the PVS does not provide DHCP and you are confident you are connected directly to LAN1.

On Windows:

1. Open **Settings**.
2. Go to **Network & Internet**.
3. Select **Advanced network settings**.
4. Select **More network adapter options**.
5. Right-click **Ethernet** → **Properties**.
6. Select **Internet Protocol Version 4 (TCP/IPv4)**.
7. Choose **Use the following IP address**.
8. Enter:

```
IP address:      172.27.153.10
Subnet mask:     255.255.255.0
Default gateway: 172.27.153.1
DNS server:      Leave blank
```

Then try:

```
http://172.27.153.1
```

Important

This is a temporary laptop-side setting. It does not modify the PVS. After testing, return the laptop Ethernet adapter to:

- Obtain an IP address automatically
- Obtain DNS server address automatically

Do not manually configure the PVS itself unless you know exactly what you are doing.

---

9. What information might be available?

The exact information depends on:

- PVS5/PVS5x versus PVS6
- Firmware version
- Whether your system uses AC modules or a string inverter
- Whether the equipment is properly provisioned
- Whether the local interface is still enabled
- Whether newer firmware requires authentication
- Whether the gateway can communicate with the panels/microinverters

A local PVS interface may expose some or all of the following.

A. Gateway/controller information

Potential fields include:

- PVS model
- Gateway serial number
- Firmware version
- Hardware revision
- Device uptime
- Local IP address
- Network status
- Internet connectivity status
- Cellular/Wi-Fi/Ethernet status
- Time/date status
- Communication status

A community-maintained technical reference notes that PVS5/PVS6 units expose local system information and device data through their internal web services. (**GitHub**)

B. Current solar production

Depending on the equipment and firmware, you may be able to see:

- Current AC power output in watts or kilowatts
- Current DC voltage

- Current DC current
- Per-panel or per-microinverter output
- Inverter output
- System production today
- Energy produced over a selected period
- Cumulative energy
- Grid voltage
- Mains voltage
- Frequency
- Consumption
- Grid import
- Grid export

A third-party local dashboard project for SunPower PVS5/PVS6 systems reports that the available data can include:

- Production
- Consumption
- Mains voltages
- Panel DC voltage
- Panel DC current
- Microinverter AC voltage
- Device model and serial numbers

This is useful evidence that the local gateway can contain more information than the old cloud report, although availability depends on firmware and system configuration. (**GitHub**)

C. Device inventory

You may see a list of provisioned equipment such as:

- PVS gateway
- Inverter
- Microinverters
- Solar panels
- Power meters
- Consumption CT meters
- Production CT meters
- Battery components, if installed
- Communication devices

For an AC-module system, the PVS may communicate with the microinverters using power-line communication. For some string-inverter installations, it may use RS-485 or Ethernet communications. (**Manuals+**)

D. Alerts and fault information

Possible information may include:

- Inverter fault
- Microinverter communication failure
- Panel not reporting
- Gateway offline

- Grid fault
- AC voltage fault
- Frequency fault
- Ground fault
- Over-temperature event
- Device discovery failure
- Communication timeout
- Missing device
- Production below expected level
- Meter communication error
- Cellular modem or network fault

However, do not assume every PVS interface displays a complete historical alarm log. Some alerts may only be available through the installer interface, the inverter itself, or the former cloud platform.

---

10. A particularly useful diagnostic: compare gateway data with utility data

Your main question is whether the missing SunPower report reflects:

1. **A monitoring/data-collection problem**, or
2. **Actual solar production loss**

The most useful test is to compare several data sources.

Data source	What it tells you
PVS local interface	What the controller currently sees
Inverter/microinverter history	Whether solar equipment actually produced
SunPower report	What was uploaded to the cloud
Utility meter	Energy imported/exported at the grid connection
TXU bill	Billing-period import/export totals
Physical inspection	Whether equipment is powered and operating

For example:

- If the PVS local data shows production but the SunPower report shows "–," the problem is likely reporting/cloud-related.
- If the PVS shows zero production during sunny conditions and the inverter has faults, there may be an actual system problem.
- If the PVS shows production but utility exports are low, your home may be consuming most of the solar energy—or the production/consumption CT configuration may be inaccurate.
- If the utility meter shows normal exports but the cloud report is missing, the system may have continued operating during a monitoring outage.

---

11. PVS5/PVS6 local API and newer firmware

Some PVS5/PVS6 units expose local data through HTTP endpoints. Older community documentation describes endpoints such as:

```
http://172.27.153.1/cgi-bin/dl_cgi?Command=DeviceList
```

However, **do not assume this will work on your system**.

Beginning with newer firmware, authentication was introduced for some PVS gateways. A community project notes that firmware released around 2025 added username/password authentication to the local `dl_cgi` interface, affecting third-party dashboards. (GitHub)

Therefore:

- Do not repeatedly guess passwords.
- Do not reset the controller.
- Do not change firmware.
- Do not run undocumented write commands.
- Do not copy commands from random forums that modify device configuration.
- Do not expose the PVS local interface to the internet.

If you later want to collect data into Home Assistant, Grafana, or your DockerLab, the safer approach is to first establish **read-only local access**, identify the firmware, and then use a maintained read-only integration or a local proxy.

---

12. PVS6-specific issue: Ethernet ports may differ

Some PVS6 variants have traditional Ethernet ports. Others use an Ethernet dongle.

A SunPower technical notification distinguishes PVS6 variants by the serial number:

- Serial number containing **A**: traditional Ethernet ports are present.
- Serial number containing **W**: the unit may use an approved Ethernet dongle instead of traditional Ethernet ports.

For the dongle-based version, the documentation says the dongle must be connected while the PVS6 is powered off, then the system is powered back on. **Do not attempt to install or remove a dongle from an energized unit unless you are following the manufacturer's procedure and are qualified to do so.** (FCC.report)

For this reason, if your unit is a PVS6 and you do not see an obvious LAN1 port, stop and identify the exact model before proceeding.

---

13. Recommended first diagnostic sequence

Here is the sequence I would use for your system.

Phase A — Non-invasive connection

1. Photograph the outside label.
2. Identify PVS5/PVS5x/PVS6.
3. Photograph the visible Ethernet ports.
4. Turn off laptop Wi-Fi.
5. Connect laptop to **LAN1**.
6. Wait 60 seconds.
7. Run:

```
ipconfig
```

8. Look for a `172.27.153.x` address.
9. Open:

```
http://sunpowerconsole.com
```

10. If necessary, try:

```
http://172.27.153.1
```

Phase B — Read-only tests

Run:

```
ping 172.27.153.1
```

```
Test-NetConnection 172.27.153.1 -Port 80
```

```
Test-NetConnection 172.27.153.1 -Port 443
```

```
curl.exe -I http://172.27.153.1
```

Record:

- IP address assigned to laptop
- Whether LAN1 link lights are on
- Whether the browser opens
- Whether a login screen appears
- PVS model
- Firmware version
- Gateway serial number
- Current production
- Device list
- Alerts or fault codes

Phase C — Do not modify anything

At this stage, do not:

- Click “Commission”
- Click “Discover Devices”
- Change the site configuration
- Change the utility profile

- Change grid settings
- Change CT orientation
- Change inverter settings
- Update firmware
- Reset the gateway
- Delete devices
- Reprovision the system

The original commissioning workflow includes functions for firmware checking, device discovery, operation verification, and commissioning. Those are not necessarily appropriate for an already-operating residential system. (ManualsLib)

---

14. What would constitute useful evidence?

For your specific investigation, these are the most valuable results:

Strong evidence of actual production

- Current AC power greater than zero on a sunny day
- Multiple panels/microinverters reporting
- Historical energy totals increasing
- No inverter or microinverter fault
- Normal grid voltage and frequency
- No missing devices
- Normal production across several strings or panel groups

Evidence of a communications problem

- Controller has power
- Inverter/panels show normal output
- Gateway reports communication or cloud-upload errors
- Local production data exists but cloud data is missing
- Ethernet/Wi-Fi/cellular status is offline
- Historical local data exists for dates missing from the SunPower report

Evidence of an actual production problem

- Zero or unusually low output during strong sunlight
- One or more devices missing
- Repeated inverter fault codes
- One string or group producing substantially less than comparable groups
- Production history confirms long periods of zero output
- Utility exports remain low after accounting for household consumption
- Physical inverter or disconnect fault indicators

My recommendation for your case

Because your report had missing data for **December 2025, March 2026, and May 2026**, I would begin with a **read-only Ethernet inspection**.

The first objective is not to repair or reconfigure anything. It is to answer:

> **Does the local PVS controller still see the inverter/panels, and does it contain production or fault information that was never uploaded to the SunPower cloud?**

If you can access the console, take screenshots of:

1. Main dashboard
2. System/device list
3. Current production
4. Energy history
5. Alerts/events
6. Firmware/system information
7. Communications/network status

Before sharing screenshots publicly, obscure:

- Full serial numbers
- MAC addresses
- Local IP addresses if you prefer
- Account identifiers
- QR codes
- Any credentials or tokens

Most important: tell me the exact model printed on the controller—**PVS5, PVS5x, PVS6, or something else**—and I can narrow this into an exact port-by-port procedure for your unit.

Can I leave a permanent connection of my laptop to the controller? What 3rd party apps available I can use to track my power production? Is there a better controller now?

Yes. You can potentially keep a **permanent monitoring connection**, but I would **not leave your laptop physically connected directly to the PVS controller as the long-term solution**. A small always-on computer or your existing home server/DockerLab is better.

The best architecture is:

```
SunPower PVS controller
        │
        │ Local Ethernet/Wi-Fi
        ▼
Home Assistant / Docker monitoring host
        │
        ├── Local dashboard
        ├── Historical database
        ├── Alerts
        ├── Grafana charts
        └── Secure remote access through Tailscale
```

The important question is whether your PVS firmware still permits local read-only access.

---

1. Can you leave a laptop permanently connected?

Technically: yes, but not ideal

A laptop can remain connected to the PVS LAN1 port, assuming:

- The PVS provides the expected local network service.
- The laptop remains powered on.
- Windows does not suspend or disconnect the Ethernet adapter.
- The PVS does not require the laptop to perform an installer session.
- You do not accidentally run commissioning functions.

However, there are several disadvantages.

Problems with a permanent laptop connection

Issue	Why it matters
Power consumption	A laptop may use considerably more electricity than a small monitoring host
Sleep/hibernation	Windows may stop polling when the laptop sleeps
Ethernet isolation	LAN1 may be an installer network, not your normal home LAN
No easy remote access	You would need to be physically near the controller
Single point of failure	If the laptop reboots or updates, monitoring stops
Security	A laptop connected to an isolated device network can complicate networking
Cable location	The controller may be in a garage, utility room, or inconvenient location
PVS firmware behavior	Some newer PVS firmware restricts local API access

Better option

Use one of these:

1. **Home Assistant on a small always-on computer**
2. **Docker container on your existing Linux server**
3. **Intel NUC / mini PC**
4. **Raspberry Pi with SSD**
5. **A Windows PC that is already running 24/7**

Given your DockerLab/Home Assistant interests, a **local Docker-based collector or Home Assistant integration** is probably the most natural long-term approach.

---

2. Important distinction: LAN1 versus normal home LAN

There are two possible networking arrangements.

Option A — Direct LAN1 connection

```
Laptop
  │
  │ Ethernet
  ▼
PVS LAN1
```

This is useful for initial diagnosis, but it may not be suitable for permanent monitoring.

The PVS LAN1 network may use an internal address such as:

```
172.27.153.1
```

A device connected directly to LAN1 may not be able to access your ordinary home network or internet.

Why this is inconvenient

Your monitoring host would need either:

- A second network interface
- A carefully configured VLAN/router
- Internet access through another interface
- Or a separate network arrangement

Do not bridge the PVS LAN1 network into your home LAN casually. The PVS is an energy-control device, and exposing it unnecessarily creates security and reliability risks.

Option B — PVS connected to your home network

```
PVS controller
      │
      │ Wi-Fi or Ethernet WAN
      ▼
Home router/switch
      │
      ▼
Home Assistant / Docker server
```

This is generally the better arrangement for permanent monitoring.

The current Home Assistant integration documentation recommends connecting the PVS to the home network over Wi-Fi and reserving its IP address in the router. It identifies direct LAN1 as an alternative but recommends network isolation when using that method. (**GitHub**)

Preferred arrangement

```
PVS → Home Wi-Fi/Ethernet → Router → Monitoring server
```

Then create a DHCP reservation, for example:

```
PVS IP: 192.168.1.50
```

Your actual subnet may differ.

A fixed/reserved address prevents the monitoring software from losing track of the PVS after a router reboot.

---

3. Third-party monitoring software

There are several interesting community projects. Their compatibility depends heavily on your PVS model and firmware.

Option 1 — Enhanced SunPower for Home Assistant

Project: `smcneece/ha-esunpower`

Enhanced SunPower Home Assistant integration

This is probably the most attractive option if you already use or plan to use Home Assistant.

What it can display

According to the project documentation, it can expose:

- Current solar production
- Individual inverter output
- Per-panel energy
- MPPT information
- Inverter temperature
- Lifetime energy
- Production meter data
- Consumption meter data
- Grid import
- Grid export
- Voltage
- Frequency
- PVS uptime
- Firmware information
- Diagnostic health
- Communication status
- SunVault battery state of charge and power, if applicable
- Individual inverter health
- Alerts for panels going offline

The project supports PVS5 and PVS6 hardware, including newer firmware through its authenticated local API implementation.

Its documented requirements include:

- PVS6 firmware build **61840 or newer**
- PVS5 firmware build **5408 or newer**
- Local network access to the PVS
- Home Assistant with HACS for installation

It also supports optional WebSocket live data for PVS6, with approximately one-second updates, although the project recommends caution when using SD-card storage because of increased database writes. (GitHub)

Why it is useful

Home Assistant gives you:

- Mobile dashboard
- Browser dashboard
- Historical charts
- Energy dashboard
- Notifications
- Automations
- Integration with your existing home systems
- Local ownership of historical data

Potential limitation

It requires the PVS local API to be accessible. If your firmware blocks or restricts local access, the integration may not work without additional steps.

Option 2 — PVS Watch

Project: `timkatz/pvswatch`

PVS Watch self-hosted SunPower monitor

This is a standalone, Docker-friendly dashboard specifically designed for PVS5/PVS6 systems.

What it provides

- Real-time solar production
- Home consumption
- Grid import/export
- Battery information, if present
- Per-panel detail
- Historical charts
- Energy-flow diagram
- Savings calculations
- SQLite historical storage
- Local web dashboard
- Optional Tailscale access

The project uses a polling interval of approximately five minutes by default. It specifically warns against polling too frequently because the PVS device-list endpoint can take 30–45 seconds to respond. (**GitHub**)

Why it may fit your setup

You could run it on:

- Ubuntu Server
- Intel NUC
- Docker VM
- DockerLab
- A small always-on Linux computer

The architecture would look like:

```
PVS controller
      │
      ▼
PVS Watch Docker container
      │
      ├── SQLite history
      ├── Web dashboard
      └── Tailscale access
```

For your environment, this may be simpler than deploying the full Home Assistant ecosystem if your only objective is solar monitoring.

Option 3 — SunPower Web Monitor

Project: `thomastech/SunPower-Web-Monitor`

This is an older and lighter monitoring project.

SunPower Web Monitor on GitHub

It is relevant because it helped establish the community approach of retrieving data directly from the PVS gateway rather than depending on the cloud platform.

Potentially available information includes:

- System output
- Per-panel production
- Historical energy
- Consumption
- Grid measurements

Caution

This project may be less suitable for newer firmware. The newer Enhanced SunPower integration exists partly because newer PVS firmware introduced authenticated APIs and changed how local data is accessed.

Option 4 — Prometheus + Grafana

For a more infrastructure-oriented setup, you can use:

```
PVS
 │
 ▼
SunPower exporter
 │
 ▼
Prometheus
 │
 ▼
Grafana
```

A community project called **SunPower-PVS-Exporter** is referenced by PVS Watch as a Prometheus-oriented option. (GitHub)

What Grafana would give you

You could build dashboards showing:

- Solar kW now
- Daily kWh
- Monthly kWh
- Year-to-date kWh
- Grid import/export
- Consumption
- Per-panel output
- Missing inverter data
- Inverter availability
- Communication failures
- Production versus expected solar output
- Rolling 7-day and 30-day averages
- Alerts when production drops below a threshold

For example:

```
Solar production today:       31.4 kWh
Current solar output:          4.8 kW
Grid import:                   0.7 kW
Grid export:                   3.2 kW
Active microinverters:       42 / 44
Offline microinverters:          2
Last successful poll:       12:05:00
```

Those numbers are illustrative only—not readings from your system.

Option 5 — Custom Docker collector

Because you use Linux, Docker, networking, and Home Assistant, you could also create your own collector:

```
PVS local API
      │
      ▼
Python collector
      │
      ├── SQLite/PostgreSQL
      ├── MQTT
      ├── Prometheus
      └── Grafana
```

This gives maximum control, but it is more maintenance-intensive.

I would not start here until you confirm:

1. Your PVS model
2. Firmware version
3. Local API accessibility

4. Authentication method
5. Whether individual inverter data is available

---

4. Firmware compatibility is the deciding factor

This is the most important issue before choosing software.

Older PVS firmware

Older PVS systems may expose local HTTP endpoints without the newer authentication mechanism.

Newer PVS firmware

Newer firmware may require authenticated access. Community projects document credentials using:

```
Username: ssm_owner
Password: last five characters of the PVS internal serial number
```

This should not be assumed universally, and you should verify it against the exact firmware and project documentation. Some projects specifically document authenticated access for newer PVS5/PVS6 systems. (**GitHub**)

Important security rule

Do not:

- Expose the PVS directly to the internet
- Port-forward the PVS from your router
- Put the PVS on a public IP
- Upload credentials to GitHub
- Store the PVS password in a public Docker Compose file
- Use an undocumented command that writes settings
- Attempt firmware downgrades casually

If you need remote access, use:

```
PVS → Local collector → Tailscale → Your laptop/phone
```

Not:

```
Internet → PVS controller
```

A recent security study found that exposed internet-connected distributed energy devices can create significant security risks, including unauthorized access to monitoring or control endpoints. (**arXiv**)

---

5. Is there a “better controller” now?

There are two different meanings of “better controller.”

A. Better monitoring controller

You may not need to replace the PVS hardware at all.

If the PVS controller still communicates with your panels and inverter, a third-party local collector can make it useful again:

```
Existing PVS → Local monitoring software → Your own dashboard
```

This is often the least disruptive path.

The PVS is not necessarily the device that produces power. It is generally the **monitoring/gateway/controller layer** that gathers information from the inverter or microinverters.

Replacing only the monitoring controller may not improve the underlying solar production.

B. Replacing the PVS with a modern gateway

A newer monitoring gateway may be possible, but compatibility is not universal.

The replacement depends on the architecture of your system:

- SunPower AC modules with integrated microinverters
- Enphase-based architecture
- SunPower string inverter
- SunVault battery system
- PVS5/PVS5x
- PVS6
- Production and consumption CT meters
- Communications wiring
- Utility interconnection requirements

A generic solar monitoring gateway cannot necessarily replace a PVS controller because the PVS may communicate with proprietary or system-specific equipment.

Possible modern alternatives

Enphase Enlighten / Envoy

If your system uses Enphase microinverters, an Enphase Envoy or newer Enphase communications gateway may be an option—but only if your specific microinverters and wiring are compatible.

Enphase monitoring is designed to expose:

- System production
- Per-microinverter data
- Consumption
- Grid import/export
- Battery status, where supported
- Alerts

However, you should **not assume a SunPower-branded AC module can simply be moved to an Enphase gateway**. The exact microinverter model and provisioning requirements must be verified.

SunStrong Connect

The current official ecosystem for many former SunPower residential systems is **SunStrong Connect**. SunPower's support documentation describes reconnecting PVS6 monitoring to Wi-Fi through the SunStrong Connect app. (SunPower)

This may be the appropriate official path if your priority is:

- Supported monitoring
- Warranty compatibility
- Installer support
- Official battery integration
- Avoiding unsupported modifications

However, official availability and functionality can vary by system, region, equipment, and account migration status.

Third-party local monitoring

For your particular goal—recovering historical visibility and diagnosing performance—a third-party local monitor may provide more control than replacing the controller.

---

6. Comparison of your practical choices

Option	Cost	Complexity	Local data ownership	Per-panel data	Remote access	Main limitation
Keep laptop connected	Low	Low	Limited	Possibly	Awkward	Laptop must stay awake
Home Assistant + Enhanced SunPower	Low software cost	Medium	Excellent	Yes, if exposed	Excellent with Tailscale	Firmware/API compatibility
PVS Watch Docker	Low software cost	Medium	Excellent	Yes, if exposed	Yes, with Tailscale	Firmware/API compatibility
Prometheus + Grafana	Low software cost	Medium-high	Excellent	Depends on exporter	Excellent	More setup and maintenance
Official SunStrong Connect	Potential subscription/availability	Low	Cloud-dependent	Depends on service	Yes	Vendor/cloud dependency
Replace PVS gateway	Potentially expensive	High	Depends on new system	Depends on compatibility	Depends on product	May not support existing equipment
Replace inverter/microinverters	Expensive	Very high	Depends on new architecture	Usually yes	Usually yes	Electrical redesign and permitting

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7. What I would do in your situation

I would use a staged approach rather than immediately replacing hardware.

Stage 1 — Identify the equipment

Confirm:

- PVS model
- PVS serial number
- Firmware version
- Inverter/microinverter model
- Whether your system has SunVault
- Whether the PVS is currently connected to home Wi-Fi
- Whether LAN1 is available

Stage 2 — Test local read-only access

From a laptop:

```
ipconfig
```

Then determine whether the PVS is reachable.

If connected to your home network, identify its IP address from your router's DHCP lease list.

Stage 3 — Install one monitoring platform

I would evaluate in this order:

1. **Enhanced SunPower for Home Assistant** if you want integration with your home automation system.
2. **PVS Watch** if you want a dedicated, Docker-based solar dashboard.
3. **Prometheus/Grafana** if you want infrastructure-grade time-series analytics.

Stage 4 — Store your own historical data

Once data is flowing, retain:

- Current power
- Daily energy
- Monthly energy
- Lifetime energy
- Per-panel output
- Inverter availability
- Grid import/export
- Consumption
- Alerts
- Communication status

This prevents another cloud shutdown from erasing your visibility.

Stage 5 — Only then consider hardware replacement

A replacement controller becomes more reasonable if:

- The PVS hardware itself is failing
- It cannot communicate with the panels
- It has persistent hardware faults
- The local API is unavailable and official monitoring is unacceptable
- Your installer confirms a supported replacement path

- The replacement is compatible with your inverter/microinverter architecture

---

My practical conclusion

Can you leave your laptop connected?

Yes for testing, but not as the preferred permanent design. Use an always-on monitoring host instead.

What third-party software should you investigate?

The most relevant current options are:

- **Enhanced SunPower Home Assistant integration** — broad sensors, alerts, per-inverter monitoring, energy dashboard
- **PVS Watch** — dedicated Docker dashboard with local history and Tailscale support
- **Prometheus/Grafana** — advanced time-series monitoring
- **SunPower Web Monitor** — older lightweight option, subject to firmware compatibility

Is there a better controller?

Possibly, but do not replace the PVS until you identify the actual inverter/microinverter architecture. In many cases, the existing PVS can remain in place while a local software collector becomes your new monitoring layer.

For your DockerLab, the target architecture I would aim for is:

```
SunPower PVS
    │
    │ Local LAN
    ▼
PVS Watch or Home Assistant
    │
    ├── Historical database
    ├── Solar dashboard
    ├── Production alerts
    ├── Per-panel health
    ├── Grid import/export
    └── Tailscale remote access
```

That gives you a monitoring system you control, without immediately disturbing the solar electrical system.

Cost of SunStrong per month or year?

SunStrong Connect pricing

As of the latest published information I could find, **SunStrong Connect has two separate possible charges**:

1. **Premium monitoring features**
2. **Cellular connectivity**, if your system needs cellular service instead of Wi-Fi

Published prices

Service	Monthly cost	Annual cost
Premium monitoring features	**$9.99/month**	**$99.99/year**

Cellular monitoring — solar only	Not listed monthly	**$59.99/year**
Cellular monitoring — solar + battery	Not listed monthly	**$149.99/year**

SunStrong's help center lists the premium subscription as **$9.99 per month or $99.99 per year**. Premium features include historical performance data, panel-level monitoring where supported, production/consumption analytics, and monthly reports. (SunStrong Management)

A SunStrong monitoring update lists cellular connectivity at:

- **$59.99/year** for solar-only systems
- **$149.99/year** for solar-plus-battery systems

(Solar Technologies)

What is free versus paid?

Based on SunStrong's published help information:

Basic/free functionality may include

- Connecting or managing Wi-Fi
- Firmware updates
- Basic system connection functions
- Possibly limited current system information

Premium functionality

The published premium feature list includes:

- Historical performance data
- Panel-level monitoring, if your system has compatible microinverters
- Production and consumption analytics
- Monthly performance reports

(SunStrong Management)

The exact free-feature availability can depend on the system's originator, equipment, account status, and current app version. I would verify what your account shows before paying.

Your likely cost

If your 2016 system is **solar-only and connected through Wi-Fi**, the likely advertised cost would be:

> **$99.99 per year**, or approximately **$8.33 per month when paid annually**.

If it requires **cellular connectivity instead of Wi-Fi**, the published cellular charge is:

> **$59.99 per year** for solar-only.

If both premium historical monitoring and cellular service are required, the advertised combined annual cost would be approximately:

> **$159.98 per year**

That is a simple addition of the published prices—not a guarantee that SunStrong offers or requires that exact bundled arrangement.

For a solar-plus-battery system, the comparable combination would be:

> **$99.99 + $149.99 = $249.98 per year**

Again, confirm whether both charges apply to your account.

Important issue for your situation

Since you have a **2016 Freedom Solar-installed SunPower system**, I would first determine whether you actually need cellular service.

Your options may be:

```
Option A:
Existing PVS → Home Wi-Fi → SunStrong Connect
```

Potential cost:

> **$99.99/year** for premium features, if you want historical analytics.

Or:

```
Option B:
Existing PVS → Cellular network → SunStrong Connect
```

Potential cost:

> **$59.99/year** for solar-only cellular connectivity, plus premium monitoring if selected.

Or:

```
Option C:
Existing PVS → Local network → Home Assistant/PVS Watch
```

Potential cost:

> **No recurring software subscription**, assuming you run the software yourself.

You would still have electricity, hardware, and maintenance costs, but no required SunStrong premium-monitoring subscription in the usual self-hosted arrangement.

Is SunStrong worth paying for?

The decision depends on what you want:

Your objective	SunStrong Premium	Local monitoring
Simple official app	Convenient	More setup
Historical data	Yes, paid tier	Yes, if collector works
Panel-level data	Depends on equipment	Potentially extensive
Vendor support	Official ecosystem	Community/self-supported
No recurring fee	No, for premium	Usually possible

Works after cloud changes	Dependent on SunStrong	More independent
Home Assistant integration	Limited/indirect	Stronger
Full control of data	Cloud-dependent	Local ownership

For your stated goal—**diagnosing missing historical production and retaining your own data**—the most important question is whether SunStrong can restore or expose the historical data from your old PVS system. Paying $99.99/year is not necessarily useful if the historical data you need was never migrated or is unavailable.

Before subscribing, ask:

> "Will the Premium plan restore historical production data from my original 2016 SunPower system, including the missing December 2025, March 2026, and May 2026 periods? Does it provide per-panel data for my specific equipment, and is cellular service required?"

Also note that SunStrong's customer-service page says it generally does **not provide maintenance services for customers who outright own their systems**, and directs installation-related issues to the original installer. (SunStrong Management)

Bottom line

- **Premium monitoring:** $9.99/month or $99.99/year
- **Cellular solar-only:** $59.99/year
- **Cellular solar + battery:** $149.99/year
- **Self-hosted monitoring:** potentially $0 recurring software cost, but requires setup and maintenance

Official reference: SunStrong Help Center

My PVS 5 had a red light and power cycle it and went away, will that be the cause of my under power generation?

Yes, the red light could be related to your apparent under-generation—but it does not automatically mean the solar panels themselves were producing less power. The key is **which PVS5 indicator was red** and whether the red light represented a monitoring/communication fault or an actual inverter/device fault.

What the red PVS5 light usually means

The PVS5/PVS5x has several indicators. According to SunPower's LED guide:

Red indicator	Likely meaning	Does it directly reduce solar production?
Inverter / AC Module	PVS is not receiving data from one or more solar devices; possible system problem	**Possibly**
Device Communication	Issue communicating with equipment that sends energy data	Usually **no**; system may still be operating
Internet Communication	PVS cannot connect to your home network/internet	**Usually no**
Cellular Communication	Cellular communication problem	**Usually no**
Power indicator off	PVS is not powered	Monitoring unavailable; production impact depends on what lost power

The published guide specifically says that a red **Device Communication** light generally means the solar system is "most likely operating normally," while a red **Inverter/AC Module** indicator can mean that the system is not receiving inverter data and may require further investigation. (Manuals+)

How this could explain your missing production data

Your earlier report showed complete missing months and inconsistent reporting:

- December 2025: missing
- March 2026: missing
- May 2026: missing
- April 2026: partial/inconsistent
- Other months: production data present

That pattern is **very compatible with a monitoring or communications problem**, especially if the PVS5 stopped uploading data while the solar equipment continued operating.

A PVS5 can lose communication with:

- The home network or Wi-Fi
- SunPower's monitoring servers
- The inverter or microinverters
- Its internal data/logging service
- Its cellular modem
- Powerline communication equipment, if used

In those cases, the online report may show little or no production even though the panels are still generating electricity. A documented PVS5 troubleshooting guide distinguishes between a communications fault and a system-production fault. (Manuals+)

Important distinction

There are two separate data paths:

```
Solar panels
    ↓
Microinverters / inverters
    ↓
Electrical panel / utility meter
    ↓
Actual solar production and grid import/export
```

And:

```
Microinverters / inverters
    ↓
PVS5 monitoring controller
    ↓
Internet
    ↓
SunPower/SunStrong cloud
```

```
      ↓
App and production reports
```

A failure in the second path can cause missing app data without stopping production.

However, if the red indicator was specifically **Inverter/AC Module**, it could indicate that the PVS5 was not receiving data from the solar devices. That may be only a communications problem, but it could also indicate that one or more inverters were actually offline.

What does the power cycle tell us?

The fact that you power-cycled the PVS5 and the red light disappeared is useful evidence.

It suggests one of the following:

1. **The PVS5 software had become stuck.**
2. **The monitoring communication process had failed.**
3. **The network connection had become stale.**
4. **The PVS5 temporarily lost communication with the inverter devices.**
5. **A transient fault cleared after reboot.**

It does **not** prove that the panels were under-producing before the reboot.

A reboot restoring the indicator is more suggestive of a **controller or communication fault** than a permanent panel failure. But if the red light returns, especially during sunny daylight hours, it deserves investigation.

There are also reports from PVS5 users of the red lightning/inverter indicator disappearing after a reboot while monitoring data resumes. These are user reports rather than definitive manufacturer diagnoses, but they show that the behavior is consistent with a PVS5 communication/software issue. (Reddit)

How to determine whether production was actually reduced

Test 1: Check the utility meter or utility portal

This is the most important independent check.

Your utility meter records electricity flowing between your home and the grid independently of the PVS5 cloud report. Compare:

- Grid imports
- Grid exports or solar buyback
- Total household consumption
- Solar production, if your utility provides it

If the PVS5 showed no production but your utility recorded substantial export or reduced grid imports, the PVS5 was probably reporting incorrectly rather than the panels being completely offline.

But be careful: **lower buyback does not necessarily equal lower solar production**. It can also result from:

- Higher household consumption
- More air-conditioning use
- EV charging
- Pool equipment
- Battery charging

- Different utility rate/buyback rules
- Solar production occurring at times when the home was consuming it directly

---

Test 2: Check the PVS5 local interface now

Since your scanner found:

```
192.168.1.124
SunPower Corp
```

Try opening:

```
http://192.168.1.124
```

Also try the PVS local diagnostic/log interface:

```
http://192.168.1.124:19531
```

A community technical investigation documents a PVS local log interface at `sunpowerconsole.com:19531`, or the equivalent local IP and port. It can expose internal log messages and may help identify communication or upload problems. This is not an official consumer-facing interface, so avoid changing settings or issuing commands. (**Dolf Starreveld**)

From PowerShell:

```
Test-NetConnection 192.168.1.124 -Port 80
```

```
Test-NetConnection 192.168.1.124 -Port 19531
```

If port 19531 is open, try:

```
http://192.168.1.124:19531
```

Look for information such as:

- Last successful upload
- Inverter communication errors
- Device discovery failures
- Data queue or backlog
- Timestamp of last received inverter data
- Network errors
- Firmware version
- Repeated reboot or service errors

Do not modify anything in the diagnostic interface.

Test 3: Check whether the red light returns

For the next several days, record:

Date/time	PVS5 lights	Weather	PVS production	Utility import/export
Morning				
Midday				
Evening				

If the red light returns after one or two days, that points toward an unresolved issue such as:

- Aging PVS5 hardware
- Firmware/software problem
- Network instability
- Failing communication component
- Inverter/microinverter communication issue
- Internal storage/logging problem

A technical report on PVS5 systems describes a possible firmware/logging condition in which buffered data fails to upload, local logs accumulate, and cloud reporting stops. The report is third-party and should be treated as a plausible failure mode rather than a confirmed diagnosis of your unit. (**Dolf Starreveld**)

My assessment of your situation

Based on what you described:

Most likely possibilities

1. **PVS5 monitoring/communication fault**
   Especially plausible because you had missing historical months and the red light disappeared after a power cycle.
2. **PVS5 temporarily lost communication with the inverter network**
   The panels may have continued generating, but the controller stopped receiving or uploading data.
3. **One or more inverter/microinverter devices intermittently offline**
   This becomes more likely if the red light was specifically the **Inverter/AC Module** indicator and the utility data also shows reduced solar export.
4. **Actual solar under-production**
   Still possible, but the red PVS5 light alone does not establish it.

What I would not conclude yet

I would **not yet conclude that your panels are defective** or that the entire array was under-producing solely because:

- The app had missing months
- The PVS5 showed a red light
- A reboot cleared the light

Those facts establish a monitoring/system anomaly, not the exact cause.

What to ask the technician to check

Give the technician this specific request:

> "My SunPower PVS5 displayed a red indicator. After power cycling, the red light disappeared. My cloud production report also has missing periods in December 2025, March 2026, and May 2026, with partial data in April 2026. Please determine whether this was only a PVS5 monitoring problem or whether any microinverters/inverters were actually offline."

Ask them to verify:

1. **PVS5 fault and event history**
2. **Which LED/indicator generated the red alert**
3. **Inverter/microinverter communication status**
4. **Per-panel or per-microinverter production**
5. **Any offline devices**
6. **AC and DC voltage/current where appropriate**
7. **Array breaker and disconnect status**
8. **Powerline communication equipment, if installed**
9. **PVS5 firmware version**
10. **PVS5 network and upload logs**
11. **Whether historical data was recorded locally but never uploaded**
12. **Whether any production data can be recovered from the PVS5**
13. **Whether the red light returns after the reboot**
14. **Whether utility meter data confirms actual production loss**

Bottom line

The red PVS5 light may explain the missing production reports, and the fact that it cleared after a power cycle strongly suggests a controller or communication issue. But it does not, by itself, prove that your solar array was under-producing.

The decisive question is:

> **Did the inverter/microinverter system actually produce less electricity, or did the PVS5 merely fail to record/report it?**

Your utility import/export data, PVS5 local logs, and per-inverter diagnostic data should help separate those two possibilities.