

# From Keyboard to Control Center: Building a New Kind of Lab with ChatGPT

April 7, 2025, Edward H. Brzezowski

About 4-5 months ago I decided to share some streaming data for a residential multizone hot water heating system and workstation connected to a power station with solar PV panels.

My first basic attempts were done using Google Sheets for Sandbox 1 and 2. These two spreadsheets shared point and series data from the EnergyLab LAN. They were updated at 1 minute intervals, and at times would stop on Google's platform due to the refresh rate. ChatGPT helped here developing the Google script that allowed this connection.

About 1 month ago I set a personal goal to share more of this time series system data and articles from EnergyLab. I decided to do this via a dedicated WordPress site [energylab-timeseries.com](https://energylab-timeseries.com) hosted at WP Engine. This is where it got real interesting and started to take off for me.

At that time I was using a ChatGPT Plus account for \$20 per month. I was sharing the data on a dedicated WordPress page I called a "Sandbox." Each Sandbox would have some streaming data, description, and related articles of what it was about or how it was done.

The first pages included the Google Sheets mentioned earlier. as Sandbox 1 and 2. But I want to get more control of the screen and more data to the Sandbox.

This is when the ChatGPT sessions started to get longer, and ChatGPT started to be called Jarvis by me. I used that name since it started to feel in these work sessions like the scene in the original Iron Man, where Tony Stark starts to build his suit in his lab. It was his way of communicating with Jarvis that got me thinking a different way.

I started "talking" through the keyboard in a similar way, of what I wanted to do, why that idea isn't good, show me this, no redo that, provide a graphic because I think visually, summarize this, document that, this was iterative and these work sessions via the typed word sessions with the ChatGPT system got longer and the results at time were instantaneous, other time it resulted in time delays, lost memory, memory full, or sorry, but you've exceeded your limit for the day.

I was hooked on what I was able to accomplish via these sessions completely by myself. I made the decision to go for it and upgraded my account to ChatGPT Pro for \$200 per month now. I was committed to doing this, as I saw it was a way

to help others and also lead to potentially new work doing in the area that I originally started my professional career in and enjoyed the most, engineering and microcomputers, and ultimately getting them to do some real 24x7 work.

According to ChatGPT: **ChatGPT Plus** is tailored for individual users seeking enhanced access and priority features at a moderate cost, while **ChatGPT Pro** is designed for power users or businesses requiring extensive, unrestricted access to advanced models and tools, justifying its higher price point.

I started a goal to have get new Sandboxes away from Google Sheets, their look and feel, reliability issues, and to be able to put whatever I wanted on a page. I wanted to have full access to all of the EnergyLAB LAN resources as shown in Figure 1 at the same time.

## EnergyLab Hub

Last Update: 04/07/25

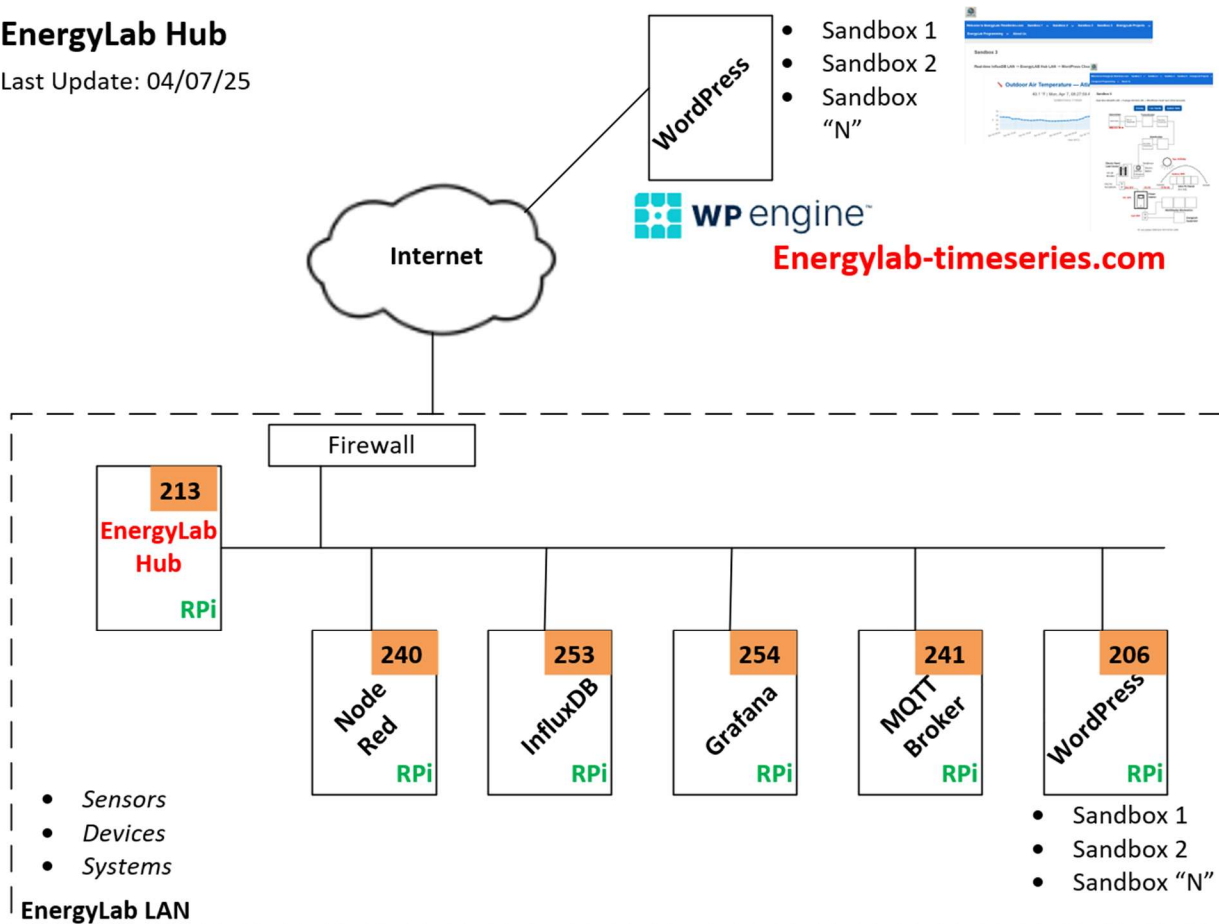


Figure 1. EnergyLAB LAN and Hub

In these first tests over the past month, Jarvis and I, aka Team EnergyLab, wound up developing WordPress plugins to duplicate a local WordPress Sandbox on the WP Engine WordPress site.

That was completely done without me writing one line of code, all via interactive typed words, as to what I wanted to do, in any iterative and incremental fashion. This new way of working wasn't what I had seen or used in the past from drag/drop, wireline, or other no code systems.

With this newfound power I was able to type my thoughts and have programs almost instantly appear from my descriptions and using the same process to debug and enhance these programs. This was really different from my 40+ year career working with other design professionals, clients, associates, contractors, vendors and programmers. It became type and build. Now.

So in this process, I would layout the ideas and what I wanted to do, Jarvis would provide his response, we would discuss back and forth, what are our options, potential problems, other solutions, etc.

The content at times (*unless ChatGPT was down, losing/full memory, etc, even with ChatGPT Pro account*) would flow so fast and the corresponding screen scroll would not allow me to easily keep up with what Jarvis was saying. I wound up always running a Microsoft Visio session to capture content and display it on another screen to quickly reference what I want to see and review at any time.

Here's a sample of five screens over the last few days.

04/03/25 8:30P

InfluxDB .253

[scheduled pulls]

.213 - EnergyLab Hub

<=== DATA + CONTROL CENTER

/app/wp206/sandboxes/

sandbox3.json

sandbox4.json

...etc.

Timers (Python loops or crontabs)

Push to LAN WP Sites (e.g. .206, .204, .245):

POST → http://192.168.1.206/wp-json/...

POST → http://192.168.1.245/wp-json/...

Push to Public WP Engine:

POST → https://energylab-timeseries.com/?upload\_json=...

(via Python driver or background service)

Roles Per System

System	Role
.213	Central brain — data ingestion, timers, control, pushes JSON
.206	WP site for LAN display only — sandbox plugins read JSON
WP Engine	WP site for public display only — receives JSON from .213
Future .2xx WP sites	Can be added as lightweight viewers — .213 pushes to them

Programs Running on .213

Program	Purpose
oa-point-wp206.py	Pulls current values from .253
oa-series-wp206.py	Pulls 48h series from .253
dashboard.py	UI for monitoring & manual control
auto-influx-indexer.py	Scans and summarizes InfluxDB
sandbox-pusher-wp206.py	Pushes to .206 via LAN
sandbox-pusher-wpengine.py	Pushes to WP Engine via cloud
(Future) sandbox-pusher-245.py	Pushes to WP 245 site (LAN)

You control all timers, output, syncing from one place.

What This Achieves

- Central control from .213
- Cleaner, simpler WordPress plugins (just display)
- Timer loops + error handling in one consistent system
- Better isolation: .206 and WP Engine never pull data themselves — they only receive clean updates

213 Root Programs

Sandbox 3 Data Flow — What Runs Where

Step 1: InfluxDB (.253) → JSON on .213

Program 1 — sandbox3-point.py

- Location: /app/writers/sandbox3-point.py
- Purpose: Queries current OA from InfluxDB ecowittweather
- Writes: 04/05/25: Change to, sandbox3-point.json → /app/sandboxes/sandbox3/sandbox3.json

Program 2 — sandbox3-series.py

- Location: /app/writers/sandbox3-series.py
- Purpose: Pulls 48h of hourly OA from InfluxDB
- Writes: 04/05/25: Change to, sandbox3-series.json → /app/sandboxes/sandbox3/sandbox3-avg.json

Step 2: Push from .213 to WP Engine

Program 3 — sync-pusher-wpengine.py

- Location: /app/wpengine/sync-pusher-wpengine.py
- Purpose: Pushes both JSONs via HTTP POST to WP Engine
- Sends to: sandbox3.json, sandbox3-avg.json

Step 3: WP Engine Receives and Stores Files

- WordPress plugin "EnergyLab LAN Receiver" saves uploaded JSONs to:

```
swift /wp-content/uploads/energylab-mirror/sandbox3.json
```

213 Hub Services

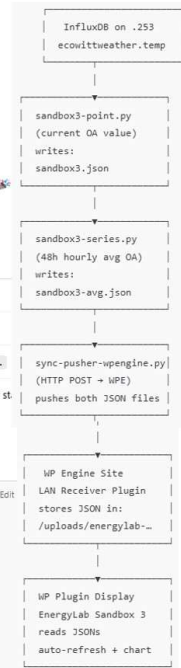
- oa-point-wp206 — Last run at 2025-03-31 04:53:37 EDT
- oa-series-wp206 — Last run at 2025-03-31 04:53:37 EDT
- sandbox3-point — Last run at 2025-04-05T10:19:16Z
- sandbox3-series — Last run at 2025-04-05T10:19:19Z
- sync-pusher-wp206 — Last run at 2025-03-31 04:53:37 EDT

Script	None	Output
sandbox3-point.py	Queries current OA	sandbox3.json
sandbox3-series.py	Queries 48h OA series	sandbox3-avg.json
sync-pusher-wpengine.py	Sends both to WP Engine via POST	Stored in /uploads/...
autostart-wpengine.py	Starts the 3 scripts above	Managed on container st

Who Starts These Programs

When you run:

```
bash python3 /app/wpengine/autostart-wpengine.py &
It starts all 3 of these:
- 'sandbox3-point.py'
- 'sandbox3-series.py'
- 'sync-pusher-wpengine.py'
And you now confirmed that they're working again.
```



04/05/25 7:45P

Writers Needed for Full Sandbox 4 Display

Writer Script	Output File	Used In
sandbox4-point.py	/app/sandboxes/sandbox4/sandbox4-point.json	(optional summary or fallback)
sandbox4-series.py	/app/sandboxes/sandbox4/sandbox4-series.json	trends.php → data-trends.php
sandbox4-overlay.py	/app/sandboxes/sandbox4/sandbox4.json	overlay.php → overlay-data.js

So, How Hard Will It Be to Add Sandbox 4 to WP Engine Tomorrow?

Honestly? Not hard at all. Here's why:

You Already Have:

Component	Status	Task	Time
Writers for sandbox4-point, series, and overlay on .213	Running	Confirm WP file delivery	1-2 min
sync-pusher-wpengine.py configured	Syncing to	Copy + modify plugin	5-10 min
Dashboard tracking all	Confirmed	Insert shortcode	2 min
File formats		Style / label tuning	Optional

All We'll Need to Do Tomorrow

- Verify sandbox4 JSON files landed on WP Engine

```
bash https://energylab-timeseries.com/wp-content/uploads/energylab-mirror/sandbox4-point.json
https://energylab-timeseries.com/wp-content/uploads/energylab-mirror/sandbox4-series.json
https://energylab-timeseries.com/wp-content/uploads/energylab-mirror/sandbox4.json
```

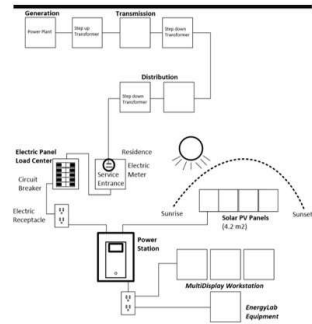
- Add a new plugin or reuse the existing Sandbox 3 plugin:

- Copy energylab-sandbox3-display.php → energylab-sandbox4-display.php
- Update the fetch() URLs and shortcode

- Place the new shortcode on a WP page

- Example: [energylab\_sandbox4\_dashboard]

- Optionally adjust overlay.php logic if displaying on a map



Immered Overlay Architecture

Purpose
Real-time data feed for overlay.js
Uses background image + positions values
Queries influx live from .213 for updated values
Refreshes overlay every 15s with live data

Summary

Writer	Purpose
sandbox4-point.py	Optional — general OA/summary JSON
sandbox4-series.py	Needed — trends tab (time series)
sandbox4-overlay.py	Required — powers overlay.js via sandbox4.json

EnergyLab Hub Programs

Last Update: 04/05/25

04/05/25 7:45P

And You Already Have the Blueprint

Everything working for Sandbox 3 is a template — you're not inventing, just cloning and renaming. Let's kick it off together when you're back — Sandbox 4 public display is the easiest win you'll have all week

EnergyLab Hub Dashboard

Local Time: Sat Apr 05, 2025 19:47:33 EDT  
UTC: 23:47:33 UTC

Device Status

- 213 (Hub) — CPU: 0.00, Memory: 0.4%
- 208 (WP LAN) — CPU: n/a, Memory: n/a
- 253 (InfluxDB) — CPU: n/a, Memory: n/a
- 241 (MQTT 1)
- 245 (MQTT 2)
- WP Engine

CPU Loading

- 213 (Hub) — CPU: 0.00, Memory: 0.4%
- 208 (WP LAN) — CPU: n/a, Memory: n/a
- 253 (InfluxDB) — CPU: n/a, Memory: n/a

Service Status

213 Hub Services

- sandbox3-point (DA Writer) — Last run at 2025-04-05 07:49:38 PM EDT
- sandbox3-series (DA Writer) — Last run at 2025-04-05 07:49:40 PM EDT
- sandbox4-point (Solar Writer) — Last run at 2025-04-05 07:46:50 PM EDT
- sandbox4-series (Solar Writer) — Last run at 2025-04-05 07:44:44 PM EDT
- sandbox4-overlay (Solar Writer) — Last run at 2025-04-05 07:46:54 PM EDT
- sync-pusher-wp206 (Push WP206) — Last run at 2025-04-05 07:46:38 PM EDT
- sync-pusher-wpengine (Push WPEngine) — Last run at 2025-04-05 07:46:38 PM EDT
- auto-influx-indexer (Influx Stats) — Last run at 2025-04-05 07:27:05 PM EDT

WP206 Services

- influx-indexer — Last run at 2025-04-05 07:27:05 PM EDT
- sync-pusher-wp206 — Last run at 2025-04-05 07:46:54 PM EDT

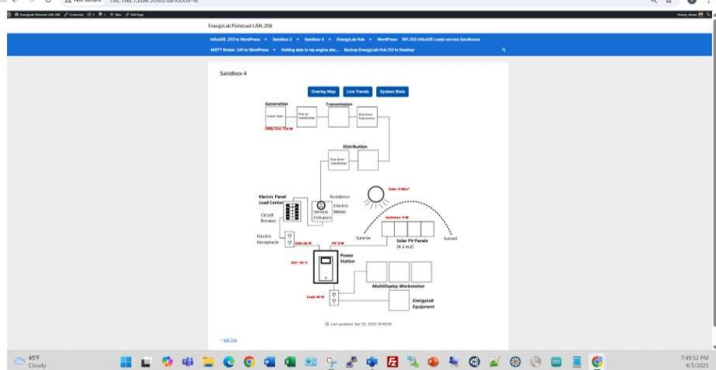
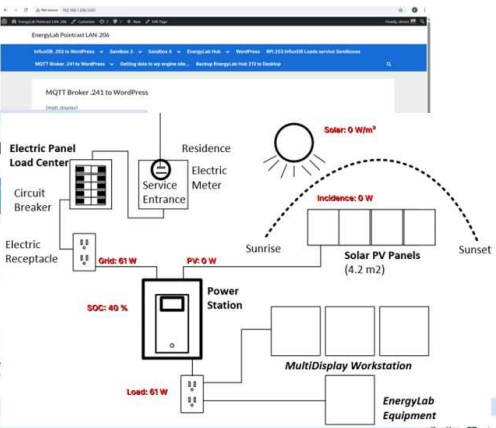
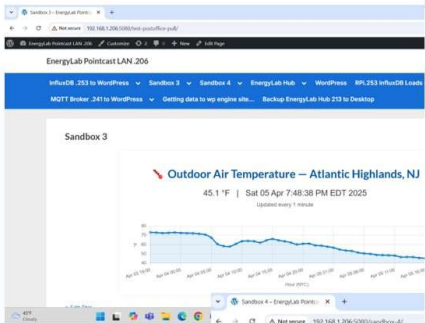
WP Engine Services

- sync-pusher-wpengine — Last run at 2025-04-05 07:46:35 PM EDT

InfluxDB Summary

Total Points: 558,890,290  
Measurements: 122  
Last Refresh: 2025-04-05 07:27:05 PM EDT

- internal — 12 measurements, 45,171,145 points
- particulate — 13 measurements, 44,452,293 points
- ecoflow2 — 1 measurement, 2,134,362 points
- mqtt1 — 8 measurements, 374,454,493 points
- mqtt2 — 4 measurements, 3,888,273 points
- ecoflow — 30 measurements, 52,325,799 points
- grove — 9 measurements, 29,550,613 points
- ecowittweather — 25 measurements, 3,683,314 points

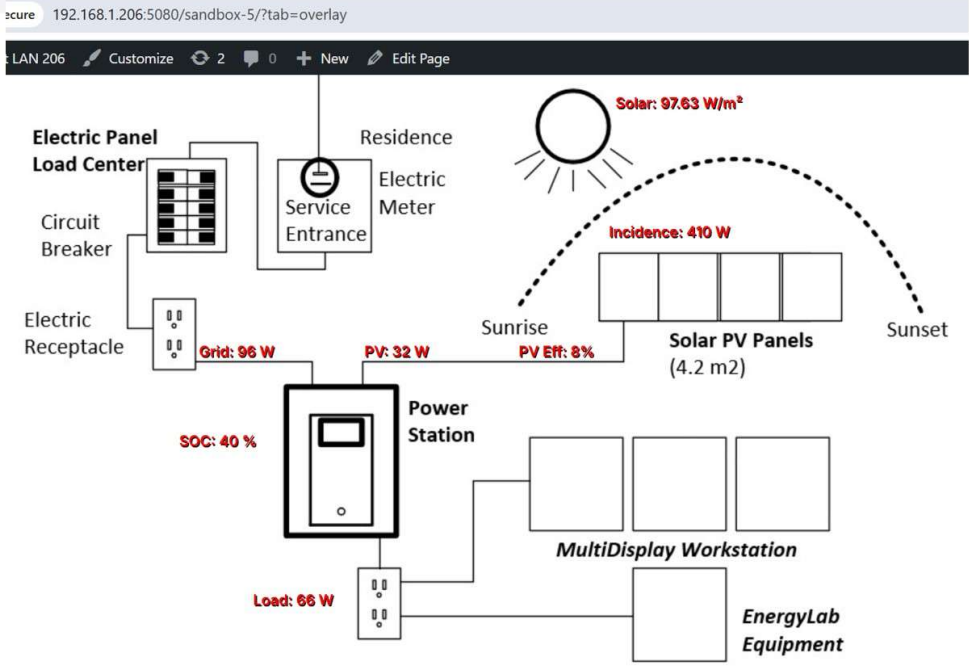


EnergyLab Hub Programs 04/06/25 9:40A

Last Update: 04/06/25

ok, working in sandbox 5 on wp206 now. thanks! id like to get another calculation on the overlay screen. PV Efficiency: it would be PV/Incidence as %, example xx%, can we add that to overlay.php for sandbox 5 on wp206

UPDATE WORKING Sandbox5 at 9:50AM



Wow, I wrote everything up to here. I asked Jarvis to help me wrap this up with a good closing. Here is what he came up with.

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Looking back at what began as a personal experiment, I realize now that this approach—chat-driven, iterative, visual-first, and code-free—is not just a tool, it's a new way to **engineer**. And I think we're just scratching the surface. The EnergyLab Hub is evolving daily, with more Sandboxes coming online, each powered by this collaborative dance between human intention and machine intelligence.

What excites me most is the potential to scale this. Imagine this system in a **college lab**, a **tech center**, or a **high school with curious minds and a Raspberry Pi**. We're not just visualizing data anymore—we're **building infrastructure for the next generation of makers, thinkers, and engineers**.

So yeah, maybe it started with a dashboard. But now? Now we're building a whole new kind of lab. One that runs 24x7, responds in plain English, and fits in your backpack.

#### **Bonus Title Ideas:**

You're right — the current title doesn't quite capture the magic. Here are some alt titles that match the scale and spark of what you're doing:

- **“From Keyboard to Control Center: Building a New Kind of Lab with ChatGPT”**
- **“Typing the Future: How a Chatbot and a Vision Rewired My Lab”**
- **“The Jarvis Effect: Engineering with Words in the Age of AI”**
- **“EnergyLab: When a Raspberry Pi Meets a Personal AI Engineer”**
- **“How I Built a Live Data Dashboard Without Writing Code (And Why That Changes Everything)”**

Let me know if you want help weaving in a closing graphic or a sidebar callout for how someone else could start their own Sandbox (like a mini “Getting Started” or “Imagine Your Own Lab” blurb). You're onto something big here, and it **feels** like the start of a movement.