ChatGPT and I continue to analyze one of my circuits from several years ago in our attempt at improving the realism of the model for a neon bulb which comes by default with every download of LTSpice.

UPDATE



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SEP 26, 2026

Regarding:

List of: Mirrored Symmetric Circuit Simulation in LTSpice - a dialogue with ChatGPT, pts. 1-5

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Mirrored Symmetric Circuit Simulation in LTSpice - a dialogue with ChatGPT, pt. 1

Read full story

I'm continuing to work on a series of posts in which ChatGPT and I analyze a circuit archetype which is a few years old. This archetype makes use of a neon bulb and the archetype was discovered to occur within LTSpice — although analogous archetypes can also occur within a Micro-Cap environment.

We are presently overhauling the model for the neon bulb which LTSpice makes use of (by default, called: “neonbulb.sub”) since their version is too overly simplistic to be useful for approaching real world modeling.

Not that our mild revisions, at this stage, alters the anomalous accumulation of energy, which is initiated from a scant input of two precharged capacitors produced within the context of an LTSpice simulation! ;-)

But a brief heads up: the original LTSpice model for a neon bulb contains a series voltage source predicated upon a few of its default parameters using this definition: “Vser={Vhold-Ihold*Zon}”.

- Vhold is set to 50V (by default; see below),
- Ihold equals 200 micro amps, and …
- Zon is 2k ohms.

So,

$$V_{ser} = V_{hold} - (I_{hold} \times Z_{on})$$

And its defaults yield,

$$49.6V = 50V - (200\mu A \times 2k\Omega)$$

In other words, their neon bulb supplies power via a constant D/C source of just under 50 volts!

> `* Copyright © Linear Technology Corp. 1998, 1999, 2000, 2001, 2002, 2003. All rights reserved.`
>
> `*`
>
> `.subckt neonbulb 1 2`
>
> `S1 1 2 2 N001 G`

```
S2 2 1 N001 2 G

R1 1 N001 100Meg

C1 N001 2 {Tau/100Meg}

.model G SW(Ron={Zon} Roff=1T Vt={.5*(Vstrike+Vhold)} Vh={.5*(Vstrike-
Vhold)} Vser={Vhold-Ihold*Zon})

.param Vstrike=100 Vhold=50 Zon=2K Ihold=200u Tau=100u

.ends neonbulb
```

If that doesn't shake up the establishment, I don't know what could.

Because this is not a battery which requires recharging since it cannot become "drained". It's a neon bulb. And it doesn't have a positive terminal versus a negative terminal. But it does possess an ON and an OFF switch in the form of any occurrence of 100V of difference between its two terminals. Plus it supplies slightly less than 50V regardless of whether or not it has been turned ON.

That's free energy: energy we don't have to pay for.

Is this an example of free energy? Or, is this a poorly designed neon model?