cloudsolar

SOLAR PAGE VIEW

Overview:

Solar Page View uses Javascript and the CloudSolar API to offset the energy consumption of measured viewing activity on a website. The goal of the system is match the entire energy use of the client-side browser display with solar energy. The system is focused on calculating the energy consumption of the client device and specifically the browser. It does not account for the energy use of other programs or activities being performed by the client device. Likewise, the algorithm does not account for server-side or network transmission energy consumption.

In this way, **Solar Page View** demonstrates a simple, novel, and useful method for websites to proactively account for the energy consumption they cause on the remote end and compensate with solar.

Approach:

The technique utilized for calculating a tab's energy usage is to start with conservative estimates and reduce these numbers based on actual information gathered from the client. The system combines three different factors to measure the tab's energy consumption: the environment, page weight, and page complexity. These three factors combine to calculate the instantaneous power consumption of a browser view.

As time on the page passes, the script aggregates this power measurement across time to judge the total energy consumption of a view or session. The script updates roughly once per second and adjusts its burn rate locally based on detected changes to the browser tab. This approach provides for the most accurate measurement possible, while falling back to conservative defaults in the event of incomplete information, ensuring that at all times the proper amount of energy is being offset.

Security:

All possible steps have been taken to ensure that this service is secure and easy to implement.

- Communication with CloudSolar is encrypted using the latest version of SSL or TLS supported by the client browser.
- The script does scan the entire webpage, but only to weigh it and identify certain types of elements. The script has no awareness of the human context of a page, the information displayed on a page, or its semantic meaning. It does not scrape page data or take any information from input fields or forms in the page; it simply measures and counts the page elements.
- Domains must register with CloudSolar to use this service. After registration their account can be viewed and managed through an online portal.
- If anything falls out of the expected normal, the solar mark will not appear or will disappear to indicate that solar matching for this view may not be occurring.