fIRlight

At Firlight, we are constantly learning and improving to make browsing our website a useful, comfortable, and sustainable experience. If you have suggestions or questions, we would love to hear your ideas!

Enviromental impact

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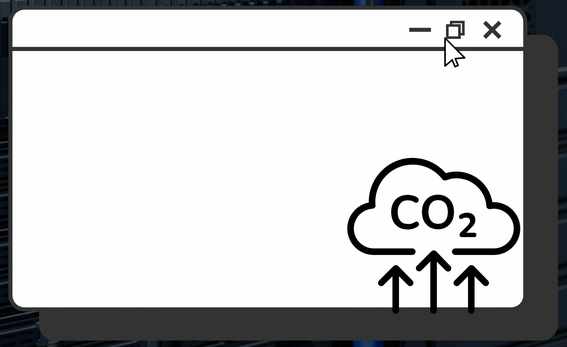
What is the Environmental Impact of the Internet?

Using Internet, sending emails, watching videos, or browsing websites—consumes energy. This energy, which comes from servers, networks, and devices, generates CO_2 emissions. Although it might seem invisible, the environmental impact of the Internet is real and significant.

An interesting fact

Every time you visit a webpage, a small amount of CO_2 is produced, similar to what a lightbulb emits while being on for a few seconds. **Now imagine millions of visits per day... the impact adds up quickly!**



Measure your Website with:
Carbon Calculator and **EcoIndex**

How is this impact measured?

A basic formula to calculate CO_2 emissions:

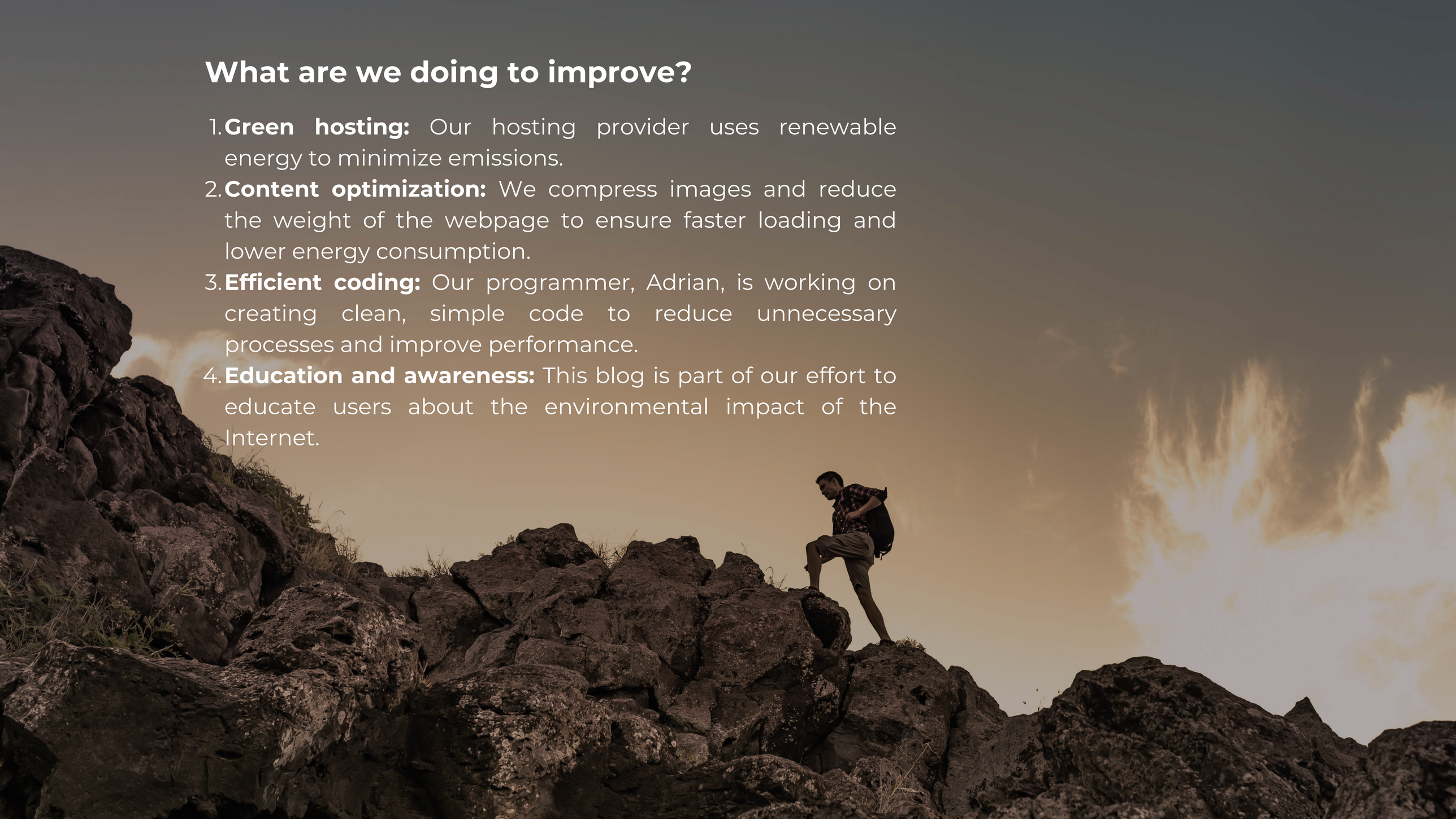
1. **Website size:** Determine how many megabytes (MB) the page occupies.
2. **Energy consumption:** Transferring data consumes energy (approximately 5 kWh per GB of data transferred).
3. **CO_2 conversion:** The electricity used has a carbon footprint. For example, on average, 0.25 kg of CO_2 is emitted per kWh.

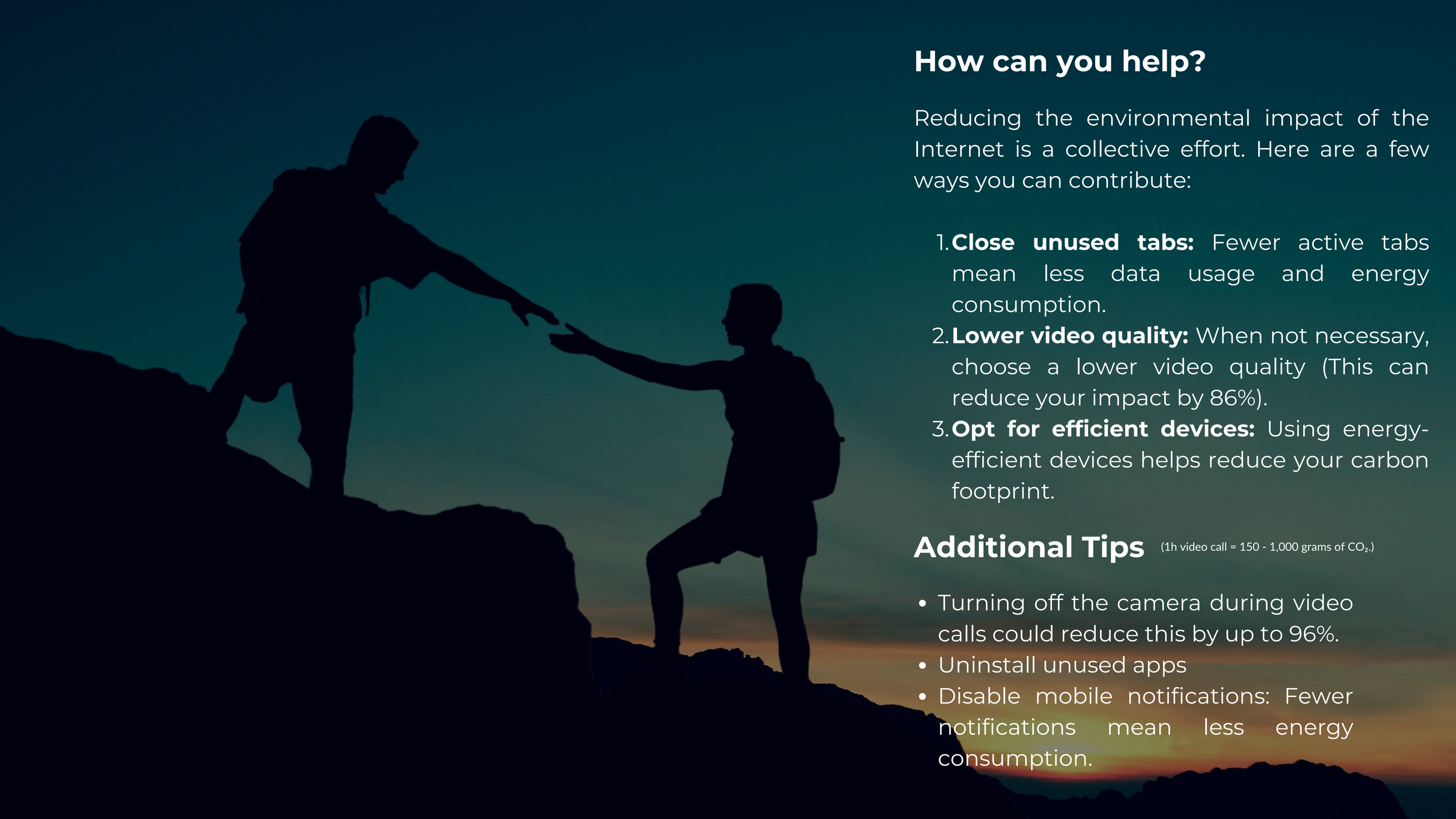
Example: If our webpage is 2 MB in size:

- 2 MB = 0.002 GB.
- Transferring 0.002 GB consumes 0.01 kWh.
- This generates 0.0025 kg of CO_2 per visit, which is equivalent to the emissions of a car driving 20 meters!

What are we doing to improve?

1. **Green hosting:** Our hosting provider uses renewable energy to minimize emissions.
2. **Content optimization:** We compress images and reduce the weight of the webpage to ensure faster loading and lower energy consumption.
3. **Efficient coding:** Our programmer, Adrian, is working on creating clean, simple code to reduce unnecessary processes and improve performance.
4. **Education and awareness:** This blog is part of our effort to educate users about the environmental impact of the Internet.





How can you help?

Reducing the environmental impact of the Internet is a collective effort. Here are a few ways you can contribute:

1. **Close unused tabs:** Fewer active tabs mean less data usage and energy consumption.
2. **Lower video quality:** When not necessary, choose a lower video quality (This can reduce your impact by 86%).
3. **Opt for efficient devices:** Using energy-efficient devices helps reduce your carbon footprint.

Additional Tips (1h video call = 150 - 1,000 grams of CO_2.)

- Turning off the camera during video calls could reduce this by up to 96%.
- Uninstall unused apps
- Disable mobile notifications: Fewer notifications mean less energy consumption.

fIRlight Blog

This blog will dive deep into the environmental impact of fIRlight, how it compares to traditional alternatives, and why it stands out as a game-changer for both the planet and its people.

The Environmental Footprint of fIRlight

1. Manufacturing Impact

Thermoelectric Module (TEG):
Converts heat into electricity using advanced materials like Bismuth Telluride (Bi_2Te_3).
- Weight: 200 g (~0.2 kg).
- Impact: 10 kg CO_2-eq.

Aluminum Heat Sink:
Dissipates excess heat efficiently.
- Weight: 300 g (~0.3 kg).
- Impact: 2.7 kg CO_2-eq (recycled aluminum).
- **Small Fan:** Provides additional cooling.
- Impact: 5 kg CO_2-eq.

PCB with LED and USB Port:
Facilitates energy transfer and lighting.
- Impact: 8 kg CO_2-eq.

2. Transportation Impact

fIRlight is manufactured in China and assembled in Spain. We considered two logistics scenarios:

- Air Transport (10,000 km):
- Emissions: 11 kg CO_2-eq.
- Sea Transport (10,000 km):
- Emissions: 0.2 kg CO_2-eq.

Total Environmental Impact:

- Air transport: 36.7 kg CO_2-eq per unit.
- Sea transport: 25.9 kg CO_2-eq per unit.

The Environmental Footprint of fIRlight

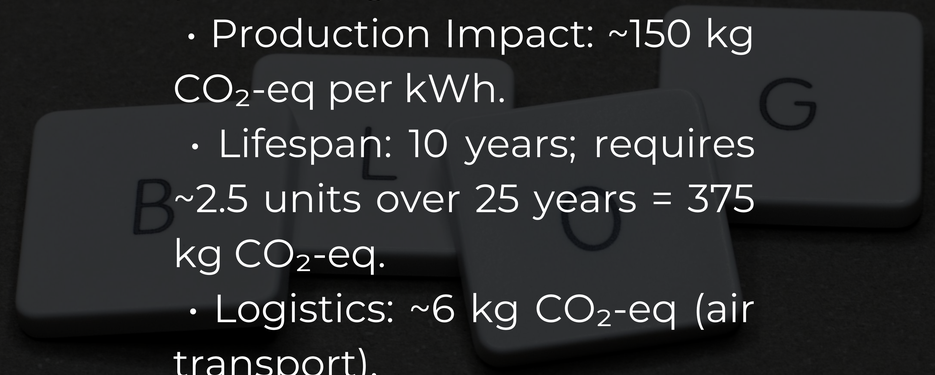
How Does fIRlight Compare to Alternatives?

1. Traditional Flashlights

- Materials: Plastics, metals, and components with limited recyclability.
- Production Impact: ~4 kg CO_2-eq.
- Battery Use:
  - ~2 AA batteries replaced every 50 hours.
  - Over 25 years: ~100 batteries = 10 kg CO_2-eq.
- Logistics: ~3 kg CO_2-eq (air transport).
- Total Impact: ~18 kg CO_2-eq.

2. Rechargeable Batteries

- Materials: Lithium-ion, with high extraction and processing costs.
- Production Impact: ~150 kg CO_2-eq per kWh.
- Lifespan: 10 years; requires ~2.5 units over 25 years = 375 kg CO_2-eq.
- Logistics: ~6 kg CO_2-eq (air transport).
- Total Impact: ~381 kg CO_2-eq.



3. Small Solar Panels (5W)

- Materials: Glass, silicon, and aluminum.
- Production Impact: ~3.5 kg CO_2-eq per W = 17.5 kg CO_2-eq for 5W.
- Compensation: Generates ~50-75 kWh in 25 years, offsetting ~20-30 kg CO_2-eq.
- Logistics: ~11 kg CO_2-eq (air transport).
- Total Net Impact: ~3.5 kg CO_2-eq.

How fIRlight helps the Planet

fIRlight operates on thermoelectric technology, harnessing waste heat from sources like campfires, stoves, or even body heat.

Our value proposition:

- 25-Year Lifespan:
- Avoids ~40 kg CO_2-eq compared to traditional flashlights.
- Provides clean energy without recurring environmental costs.
- Time to Offset Impact:
- Air transport: Compensates impact in ~3 years.
- Sea transport: Compensates impact in ~2 years.

How fIRlight helps the Planet

fIRlight's Social Impact

fIRlight goes beyond environmental sustainability with its Buy One, Give One model. For every device sold, another is donated to a person or family without access to electricity.

The Numbers:

- 1,000 units sold = 1,000 lives illuminated.
- Impact on Communities:
- Improves access to light for education, safety, and daily activities.
- Reduces reliance on polluting alternatives like kerosene lamps or disposable batteries (~20 kg CO_2-eq saved annually per household).

Quantified Social and Environmental Benefits:

- Every 1,000 units sold saves up to 60,000 kg CO_2-eq over 25 years.
- Empowers communities by providing a sustainable, long-term solution to energy access.

Sustainability at the Core

fIRlight isn’t just a product—it’s a commitment to the principles of the circular economy.

- Modular Design: Enables easy repairs and upgrades, reducing waste and prolonging the device’s lifespan.
- Recyclability: Minimizes the environmental footprint at the end of its lifecycle.
- Low Maintenance: Designed to last over 25 years with minimal resource consumption.