

# Serendipity Project: Making The Internet And Datacenters Globally Sustainable

By Selena Scola: Fall 2022

**Self-Selected Serendipity Focus:** *Making the internet globally sustainable: Technical and policy options for improved energy management, governance and community acceptance of Nordic datacenters* by Benjamin K.Sovacool, Chukwuka G.Monyei, PaulUpham <https://www.sciencedirect.com/science/article/pii/S1364032121010625>

## Why are you interested and what interest it might hold for others?

My interest in sustainable Internet technologies is multifold, as I have an ever-growing interest in climate change, sustainability, and technological impact. This paper encapsulates comprehensive insights into how our daily use of technologies impacts climate change and, ultimately, the ability of the human species to survive and thrive on Earth.

The Internet is the foundational cornerstone upon which modern society stands, and datacenters are the unseen part of our daily internet use. Datacenters facilitate E-mail and messaging, regulate website traffic loads, maintain data backups, archiving, authentication and authorization systems, firewalls, anti-malware services, and more. The internet facilitates economic growth, business ecosystems, and digital services, in turn creating employment opportunities. Therefore, unreliable or unavailable Internet access has a negative impact and costly consequences on economic growth, employment, education, and access to health and wellness resources.

Our fabulous life-enhancing technology, unfortunately, comes at a high cost to the environment. The Climate Neutral Group states that data centers Worldwide consume an estimated three percent of our global electric supply. Why does this matter? Climate change. Three percent of our global electric supply accounts for about two percent of total greenhouse (GHG) emissions; for context, the airline industry produces approximately two percent of GHG yearly worldwide. [Sovacool](#) approximates a 21% increase in global electricity use by 2030 to accommodate the demand for data-heavy services such as live-streaming video, live-streaming gaming, and cryptocurrency mining as more people come online. Such electricity demands increase the demand for more data centers, thus creating a barrier to the rapid implementation of fully sustainable practices.

To pivot from hybrid electricity systems (fossil fuels combined with renewables) to fully sustainable practices, we need to figure out adequate power storage solutions and how to sustain reliable microgrids while mitigating outstanding risks, such as the impact of climate change on local and global weather.

Unfortunately, the accelerations in climate change caused by CO2 waste and failures to address climate change impact will continue to negatively impact those at the bottom of the socioeconomic scale first and the hardest, from droughts which disrupt agriculture growth and increase famine, to flooding, which disrupts and pollutes the ability to deliver clean water to rural areas, urban areas, and metropolitan cities. Climate change impacts everyone and everything differently, the industry goes largely unregulated by governments, and most internet users are unaware of the negative impact that datacenters and the internet have on the global environment.

To ensure that new datacenters are designed with climate resilience in mind and benefit local residents, governments must design and implement policies to protect the environment in their towns, focusing on heat reuse, direct capture, and filtering of GHG without releasing it into the environment.

### **How does this paper connect with or diverge from work completed in this course?**

It applies design thinking to implementing 100% sustainable, resilient, and reliable energy supply chains. Focusing on the role government regulations play in increasing public awareness, policy performance, and how policy reform detours companies from seeking to profit from the exploitation of local communities and the environment.

### **Suggest further analysis, which will inform others how to interpret the work:**

It is critical for local and global governments' to implement policy initiatives explicitly designed to reinforce resilience, incentivize climate and environmentally-friendly energy-efficient practices, and optimize for disaster recovery if we are to exist in a world where everyone thrives and survives. Implementing unbiased and uncompromised initiatives, such as regulatory compliance policies, environmental and social impact reports, digital and field surveys, and using dedicated focus groups, have the transformative power to ensure local residents of rural communities and remote countries thrive.

As a globally connected community, we are responsible for understanding our contribution to climate change. An authentic commitment to a transparent forward-thinking digital future will create reliable revenue while providing industry stakeholders with accurate information to build flexible and profitable models that directly benefit from their investments in everyone's future.

**My question to the reader:** Were you aware of the carbon footprint that datacenters and Internet use produce?