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## SUSTAINABLE USE OF VIDEOCONFERENCING

### PURPOSE

Department of Energy (DOE) employees and contractors, like many others during the COVID-19 pandemic, have increasingly come to rely on the use of web-based cameras to connect with colleagues and stakeholders while accomplishing work on a day-to-day basis. Even before the pandemic, videoconferencing was changing the way both public and private organizations conducted business and communicated with stakeholders. The use of web-based cameras allows for face-to-face communications virtually anytime and anywhere. It also can save money and reduce environmental impacts from travel.

While videoconferencing has many benefits, a recent study has concluded that increased Internet usage - particularly increased video streaming - also has a significant and overlooked environmental impact. This Information Brief is intended to provide background on this study, and recommendations for reducing the environmental impact of using web-based cameras for videoconferencing. DOE employees and contractors should capitalize on the benefits of videoconferencing, while also minimizing their environmental impact where possible.

### BACKGROUND

A recent study in the journal *Resources, Conservation & Recycling* estimates that the land, water and carbon footprint of storage and transmission of data across the Internet “accounts for 1% of the global energy demand, more than the national energy consumption of many countries.” The increasing number of Internet users, and the applications they are using, “exacerbates the environmental footprint of the Internet, despite the many successful and significant efforts to improve the efficiency of data centers.”<sup>1</sup>

“Standard videoconferencing service uses about 2.5 GB/hour and has a carbon footprint of 157 g CO<sub>2</sub>e/hour. If one were to have 15 1-hour meetings a week, their monthly carbon footprint would be 9.4 kilograms CO<sub>2</sub>e. Simply turning off the video, however, would reduce the monthly emissions to 377 grams CO<sub>2</sub>e.”

“The overlooked environmental footprint of increasing Internet use,” *Resources, Conservation & Recycling*, January 2021

The study concludes that “large-scale adoption of environmentally responsible online behavior by many individuals is vital for combating climate change and promoting sustainability,” and cites turning off the video during virtual meetings as a small behavioral change supporting sustainable digital behavior. The study concluded that one hour of videoconferencing emits between 150-1,000 grams of carbon dioxide, requires 2-12 liters of water, and demands a land area dedicated solely to data centers and infrastructure adding up to about the size of an iPad Mini.

<sup>1</sup> “The overlooked environmental footprint of increasing Internet use.” *Resources, Conservation & Recycling*, January 2021.

Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*<sup>2</sup>, specifies that “it is the policy of (the) Administration to lead the Nation’s effort to combat the climate crisis by example.” Climate change mitigation, from individual actions to Departmental actions, is a key component of tackling the climate crisis. The following recommendations are intended to provide guidelines for reducing your work carbon footprint during videoconferencing.

## RECOMMENDATIONS

Face to face interactions can add significant value to a web-based meeting but videoconferencing is not needed for every meeting or for all participants in a meeting. Assess whether your camera should be on or off during a meeting by considering the purpose of the meeting and nature of your involvement.

Consider turning your camera **off**, if:

- You are attending to listen and/or watch a training, workshop, conference session or other web-based event, particularly if there are many other attendees.
- You are attending a meeting with many attendees and you are not currently speaking.
- You are attending a meeting just to listen and/or take notes.
- You are attending a meeting and most other attendees opt to not use their camera.

Consider turning your camera **on**, if:

- You are asking a question or engaging in a discussion at a training, workshop, conference session or other web-based event.
- You are attending a meeting of any size, and you are chairing, presenting, or currently speaking.
- Another attendee is speaking directly to you, requesting your feedback, or otherwise starting a discussion with you.
- The meeting is of a sensitive nature, such as a performance review, and being able to see other attendee(s) would contribute to better communication and clarity.

## CONCLUSION

Videoconferencing is a critical and valuable tool for DOE’s workforce. Given the environmental impact of videoconferencing and the Administration’s priority to mitigate climate change, it is important that DOE employees and contractors follow best practices when using web-based cameras.

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<sup>2</sup> <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>