

The Hidden and Growing Specter of Data-Driven Emissions

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Apple, Inc. is known and celebrated for prioritizing energy efficiency in their product design. Some of its products met ENERGY STAR guidelines as far back as 2001, with many following over the years, and by 2011, all products would meet the guidelines. Along the way, Apple, along with other companies, worked with the U.S. federal government to strengthen energy efficiency requirements for consumer electronics.

Based on Apple's reporting, it would seem that these efforts have yielded overwhelmingly positive results, in the form of reduced energy consumption over three years of use by the customer. Emissions from use of iPhone have plummeted from 27 kg of carbon dioxide in 2007 to just 11 kg today. Similarly though less dramatically, those from iPad have declined from 30.5 kg in 2010 to 24.9 in 2015. But there's a big and growing problem with these figures: they do not include emissions that stem from all the data we consume and produce by using these devices.

My research—based on ICT industry data and expert modeling by Anders Andrae, Peter M. Corcoran, and Thomas Edler—shows that real emissions from use of iPhones and iPads is actually climbing year-over-year. In this presentation I will review the discrepancies between Apple's reporting and the real emissions that stem from its products; and I will explain how one can use energy-use estimates for data centers and networks, as well as projections of data consumption growth by users, to model the real carbon cost of how we use mobile technologies today.