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Some Hidden Energy Costs Of 'Working From Home' During The Outbreak

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5-6 minutes

All the tools for telepresence.

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Electric power demand in coronavirus-wracked Italy is down 7%. World oil demand has slumped 7%. U.S. GDP is expected to contract at a 5% rate in the second quarter.

When the real world crashes, life moves online. This week millions of American office workers are experimenting with working from home. In South Korea, Italy, and Seattle telework and residential internet usage have soared 40% in just weeks. In France 80% of internet traffic is now Facebook, YouTube and Netflix, and providers are pledging to ensure "digital discipline."

Tele-commuting is not a new thing. Of 165 million U.S. workers, [24% worked from home](#) last year, according to the Bureau of Labor Statistics. That trend has been surprisingly steady for the [past decade](#). Coronavirus isolation has already boosted that, and could be a watershed event for digital connecting. As bad as quarantine is for restaurants and resorts it will be good for the likes of Slack, Zoom, Webex and GoToMeeting.

Kids are also eating up bandwidth. Depending on the number of children in your isolation group, there are probably a dozen laptops and smartphones straining your wifi. Schools are closed,

maybe until Fall. Well-equipped students have moved to "online learning" from home — which involves a lot of videochatting with chums. Many families already have ample equipment served by a 1,000 megabit per second connection, i.e. "gigabit," at about $75 per month. In the age of the coronavirus, that home data conduit is the most important connection between families and the world. And it's made telecommuting at least tolerable.

After the virus clears and we're left with a recession, landlords may have a hard time convincing corporate tenants to keep paying pricey overhead for employees who still got the work done,

remotely. It can cost $20,000, [according to JLL](#), to kit out the [average 150 square feet](#) of office space per worker. And, depending on your city, $300 or more per employee per month for rent, plus $50 per employee per month in supplies and snacks, and [$20 per month](#) to keep the lights on, air conditioned and computers charged. During coronavirus, you, dear worker, get to cover those costs.

Working hard.

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For all those potential savings to employers from telework, there's at least one benefit to the employee as well — saving on gas. The average American commutes [30 miles per day](#), or about 600 miles per month at an average 25 miles per gallon. Not commuting saves wear and tear, at least $50 per month in fuel savings, and hours per week better spent bingeing on *The Andromeda Strain*, *12 Monkeys*, and *Contagion*.

Telecommuting will make the rest of our driving cheaper. Extrapolate the impact

of millions of people worldwide now working from home and you get a reduction in petroleum demand on the order of 7 million barrels per day, or about 7%, leading to oil prices half what they were at the beginning of 2020. According to Jim Burkhard of IHS Markit, "the last time there was a global surplus of this magnitude was never."

Maintaining a steady supply of binge-watchable streaming video is certainly cheaper, and arguably just as important as keeping gas in a car. Researchers at Lawrence Berkeley Laboratory found [in a study](#) several years ago that the average power consumption of a desktop computer (used an average

7.3 hours per day) is 194 kilowatthours per year, while a laptop uses an average 75 kwh per year (at 4.8 hours per day). At an average residential [12 cents per kwh](#) that's about $40 per year for a person with two machines. Extrapolate to a family of four, including young "digital natives" all working from home, and the average home is using about $10 per month in electricity to keep its screens lit.

As for the less direct electricity cost of streaming video from distant server farms — it adds up. According to Netflix, the average stream is anywhere from [1 to 3 gigabytes](#) per hour. According to this report on the

[Electricity Intensity of Internet Data Transmission](), sending 1 GB over the internet requires .06 kwh. Other [sharp pencils]() have figured the all-in power cost of streaming video at more like .3 kwh per GB.

In simpler terms: the cost during our coronavirus isolation to stream 2 high-def video streams into your home all day long comes to about $1 per day (assuming 24 GB/day of data at roughly 0.3 kWh per GB) — costs that you're already paying to the likes of AT&T (and Hulu, Disney+, and Netflix).

So stream away. Revel in the opportunity, while your kids are trapped with you for the next month, to make

them watch *Magnum P.I.* or *The Muppet Show*. Working from home isn't going to add any overwhelming load to most systems. For all the money you're saving your employer by working from home, at least try to get them to pay for the "gigabit" connection that makes it all possible.

[The Forbes Investigation: How Bloom Energy Blew Through Billions Promising Cheap, Green Tech That Falls Short](#)

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