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Headline: 5G in the era of climate change: Boon or bane?

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The upcoming mobile communications standard, 5G, would make its big splash within the next five years, a period within the 10-year timeframe when humanity must undertake daring and radical transformations to avert the grave consequences of climate change.

The latest news in the 5G front is that China is winning the race to be the first 5G nation.

The United States, burdened by regulatory restrictions and high cost of deployment, looks like about to slide to second place even if its apologists maintain it would eventually pole vault to the top in the quality and power of its 5G infrastructure.

But what does it say when the top two contending nations in the 5G sprint are also the same countries that contribute the most to climate change? In 2017, China was the world's largest carbon dioxide (CO2) emitter by volume, followed by the US.

Considered to be the most dangerous and prevalent greenhouse gas, CO2 is a critical driver of climate change. CO2 in the atmosphere traps heat emissions and absorbs solar energy leading to global warming which in turn contributes to erratic weather patterns and the resulting change in climatic conditions.

5G promises a higher speed of wireless communications and support for cutting-edge applications such as driverless vehicles, smart cities and distance telemedicine. Those benefits, however, come with a price.

In today's 4G world, Canadian researchers estimate that the information and communications technology (ICT) sector accounts for roughly 3.5 percent of total annual global carbon emissions at 36.2 gigatons. Meanwhile, the brave new world of 5G would entail a global network of a whole lot more connected wireless devices whose demand for energy has been described as of "perfect storm" proportions.

Presently, data centers that handle websites, images and cloud computing already consume a huge amount of energy that's expected to hit 74 billion kilowatt per hour this year in the US alone. How much more in China which is pushing hard for the fourth Industrial Revolution fueled by energy intensive digital transformation? There are also the other heavy power consumers composed of India, Japan and Russia in the Top 5.

A Huawei executive has expressed the view that the increased power consumption of 5G's enhanced processing power and bandwidth must be addressed by building efficient telecom infrastructures that are financially rewarding and environmentally sustainable as well. In a word, 5G itself must be transformative.

In this context, business executives and concerned scientists look toward how equally innovative technologies such as Artificial Intelligence, Machine Learning and data analytics could be tapped to optimize power consumption in the complex wirelessly connected 5G world. This upcoming technology would embed sensors at home, in industry, in the transportation grid and just about

everywhere, enabling an all-seeing digital guardian that seeks optimization possibilities 24/7. By that reckoning, 5G has built-in potentials to reduce global warming and put at bay the imminent threat of climate change.

By the way, most discussions appear to place too much responsibility on technology and big business to take the lead in overcoming the seemingly insurmountable challenge of climate change. It makes perfect practical sense.

It should be interesting to note then that a study on population and CO2 emissions proposes that women's empowerment through family planning and educating girls has a bigger impact (more than 100 percent) on reducing carbon footprint than reduced food waste (70.53 percent) and plant-rich diet (66.11 percent). The study argues that since each person has the greatest contribution in CO2 emissions in his lifetime, having smaller families, especially among the richest nations, would have the greatest and most immediate impact on slowing down the onset of climate change-related catastrophes.

It's an option worth taking even more seriously now when the very survival of the human race or the species is at stake.