

5G and 5G-enabled technologies could help reduce greenhouse gas emissions by 20 to 25%, and deliver other environmental benefits.

5G Impact on the Environment

Many 5G use cases have commercial viability because they reduce energy requirements. A corollary benefit is that GHG emissions will decline with the scaling up on of these use cases, to the extent these energy requirements are currently met by burning fossil fuels. According to one estimate, 5G could account for up to 23% of Canada's current emission reduction targets by 2025.

5G-enabled technologies will also help feed a growing global population and advance sustainable agriculture and natural resources management practices. Sensor-enabled digital solutions applied to farm planning, field mapping, soil sampling, and tractor guidance could help increase crop yields, while reducing pesticide and herbicide use, reducing irrigation water use, and reducing nitrogen runoff from fertilizer use which causes damage to marine ecosystems.

A third environmental benefit of 5G is improvement in waste management practices. Smart labelling technologies enabled by 5G could improve the sorting and diverting of recyclable material away from landfills. Similarly, technologies such as smart labelling and packaging could reduce food waste and help divert what does get spoiled from landfills to alternative destinations such as energy recovery.

Deployment of 5G will introduce new challenges that need to be managed. First is that more intensive use of digital services will increase the GHG emissions from the Information and Communication Technology (ICT) sector. However, building 5G with precision will facilitate the optimization of network performance on the new 5G frequencies while keeping capital and operating expenditures within certain limits. This means service providers will be able to limit energy consumption growth when introducing 5G. optimize

A second challenge is the increase in electronic waste that could occur as devices and sensors that leverage 5G become obsolete or non-functioning. Supporting the growth of e-waste recycling markets, finding new ways to divert e-waste from landfills, and reducing the toxicity of substances used in these devices are important steps for government, industry and stakeholders to undertake in partnership.

Policy recommendations

- ❖ 5G should be regarded as a foundational component to addressing global warming. To that end, governments should evaluate what role 5G needs to play to achieve its climate change goals.
- ❖ Deployment of 5G solutions that reduce emissions should be measured, tracked and reported on, to demonstrate the quantitative linkage between 5G use and GHG emissions.

- ❖ Governments should establish appropriate practices for the responsible management of electronic waste resulting from the adoption of 5G-enabled technologies.