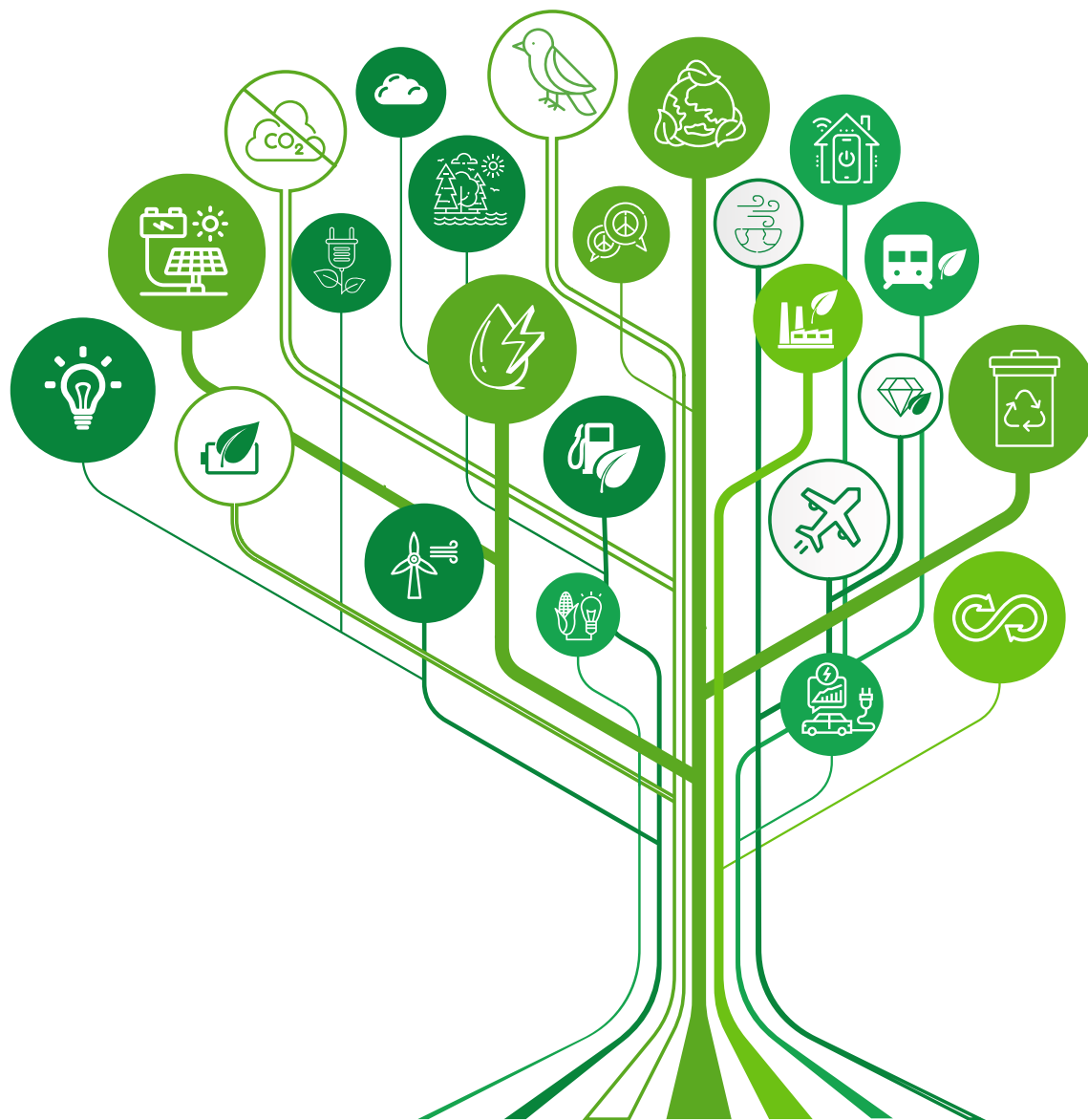


Next G Alliance Green G:

The Path Toward Sustainable 6G



Green G



NEXT G
ALLIANCE
an ATIS initiative

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FOREWORD

As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's business priorities. ATIS' 150 member companies are currently working to address network reliability, 5G, robocall mitigation, smart cities, artificial intelligence (AI)-enabled networks, distributed ledger/blockchain technology, cybersecurity, IoT, emergency services, quality of service, billing support, operations and much more. These priorities follow a fast-track development lifecycle from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open-source solutions, and interoperability testing.

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The ATIS 'Next G Alliance' is an initiative to advance North American wireless technology leadership over the next decade through private-sector-led efforts. With a strong emphasis on technology commercialization, the work will encompass the full lifecycle of research and development, manufacturing, standardization and market readiness.

ABSTRACT

The challenges of global climate change and the need to reduce our carbon footprint makes it vital that the next generation 6G networks reflect the most energy efficient available technologies, reducing our dependence on non-renewable sources and using as much as possible renewable and ambient sources of energy.

Energy consumption is not the only aspect to consider for achieving these goals and conserving our planet. Beyond energy consumption and emissions, the ICT sector's overall environmental impact also must be considered, including water consumption, raw material sourcing, and waste handling.

The objective of this report, is to provides detailed insights of the current initiatives employed across the ICT to address climate change and environmental sustainability. Furthermore, the report identifies areas for improvement, describing a range of potential solutions that could be incorporated within next generation networks to further reduce energy consumption and to be more sustainable. The report concluded on a call to action, highlighting how North America is well positioned through these key areas to drive 6G innovation in energy and environmental conservation technologies globally.

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INTRODUCTION

The Next G Alliance is a bold new initiative to advance next generation (Next G) mobile technology leadership over the 5G evolutionary path and 6G early development, ensuring North American leadership in mobile technology across key sectors will strengthen and promote the region's economic interests globally.

1.1 SUSTAINABILITY: A BIG CHALLENGE

Scientific reports have raised global awareness around climate change in the past five years and convinced the U.S., Canada, and most other worldwide governments to commit to keeping global temperature increases to well below 2°C above pre-industrial levels. In 2018,¹ scientists clarified global warming must not exceed 1.5°C to avoid the catastrophic impacts of climate change. To achieve this, greenhouse gas (GHG) emissions need to have peaked and be reduced by half every decade and drop to net-zero emissions by 2050. The most recent report, published in August 2021,² states that we have already reached +1.2°C, so the imperatives for action are urgent!

In this situation, the Information and Communications Technology (ICT) sector must make sure to do its part. For this reason, the ICT industry has developed a trajectory for the sector's decarbonization following a 1.5°C aligned ambition.³ The majority of the ICT sector footprint is related to the use of energy, so reducing energy consumption and decarbonizing the energy supply are the most important steps for the sector to reduce its emissions. However, energy consumption and carbon emissions are not the only aspects to consider for achieving these goals and protecting the planet. It is important to account for the ICT sector's overall environmental impact, including water consumption, raw material sourcing, and waste handling. This can be achieved by transitioning to a circular economy: an economic system that tackles global challenges such as climate change, biodiversity loss, waste and pollution comprehensively.

It is also recognized that ICT, including 5G and any next generation of wireless networks, has an important role to play as it can be crucial in enabling many sectors in reducing their contributions to global carbon emissions.

Creating a more sustainable Next G is a huge challenge, but also a huge opportunity. Almost a quarter of Fortune 500 companies have pledged to become carbon neutral by 2030.⁴ The number continues to grow rapidly, with one-fifth of the Fortune 100 signing a United Nations pledge to eliminate their carbon emissions by 2050. With the inevitable transition to sustainable practices already well underway, global leadership in sustainable Next G has the potential to positively impact the entire North American economy.

GOOD TO KNOW

Carbon neutral means that a company's carbon emissions are reduced as much as possible and then balanced by offsets.

Zero carbon means that no carbon was emitted in the first place.

Carbon negative means that a company removes more carbon than it emits.

Net-zero emissions means that there are net-zero emissions of all greenhouse gases, not just carbon.