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Connectivity and climate change

Examining the role of digital communications in combating climate change

November 2021

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The role of digitalization in a sustainable future

Foreword

2020 was supposed to be a landmark year for climate action, but the COVID-19 pandemic intervened. World leaders became focused on saving the lives of their people, and climate action got put on "pause". The UN climate change conference COP 26 was postponed for a whole year.

Since then, new science from the Intergovernmental Panel on Climate Change (IPCC) has shown that the climate crisis is now affecting every corner of the globe, and that every degree of warming makes life on earth more dangerous, whereas every bit of action makes it more livable.

To get on track, we need governments, businesses, investors, cities and regions to take climate science for what it is – an existential warning – and to start cutting emissions and building resilience, starting from today.

Digitalization is key to speed up this transition.

Without digitalization, not just climate action, but the whole world would have come to a halt during the pandemic. But it didn't. Thanks to digital technologies, people could still meet, work and do business across borders.

This is beneficial in many ways. Physically transporting oneself over large distances takes a lot of time, while also producing a lot of carbon emissions. We can no longer afford the time or consequences of either of those two. Not if we want to keep the planet from irreversibly over-heating. Post-COVID, we need to continue replacing in-person meetings with digital ones, whenever possible.

At We Don't Have Time, we started doing this even before the pandemic hit. In 2018, we organized the world's first no-fly, digital climate conference. We wanted to show the world that it was possible to host a global meeting with a big line-up of speakers without flying people over halfway around the world just to do a 15–30 minute presentation on stage.

This has proven to be an unbeatable way of connecting with people from all continents and giving the microphone to those who are seldom heard. Digitalization's role in making it possible to have a global climate dialogue cannot be stressed enough. There will be new pandemics, new floods, forest fires and massive volcano eruptions that might make traveling temporarily impossible. But we can't ever again let such disasters be an excuse to cancel a climate summit. We simply don't have the time for that. And thanks to digitalization, we don't need to.

This is one of many reasons we are so happy about our partnership with Ericsson. Not only is Ericsson an ICT pioneer in terms of digitalization, it is also a climate frontrunner, a global company that demonstrates to the world again and again that it is possible to cut emissions dramatically (a 70 percent in reduction in nine years) and still be very prosperous. Or rather: Showing the rest of the corporate world that taking serious climate action might in fact be the new pre-condition for long-lasting prosperity.

There are so many areas where digitalization and increased connectivity can help us spread, scale and speed up climate solutions. It will play a huge role in everything from agriculture, transportation, mining to smart micro grids. Not to mention the emerging sharing economy, where resources are shared instead of consumed. This is an area where digitalization could in fact help us create a whole different kind of fossil-free society.

Having said that, I think it is important to remember that digitalization is not a silver bullet, and it should never be seen as the goal in itself. It is a tool – among many other tools – that could help us reach our real goal: A sustainable future for all.

It's a grand goal.
Difficult to reach.
But possible.
If we act.
Now.

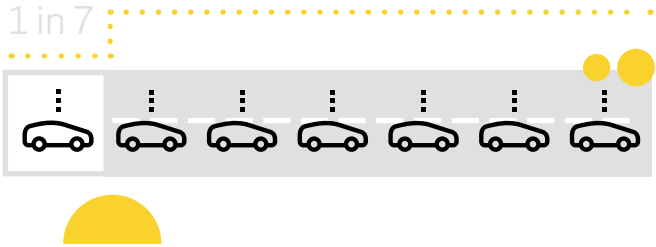
Ingmar Rentzhog,
Founder and CEO of We Don't Have Time

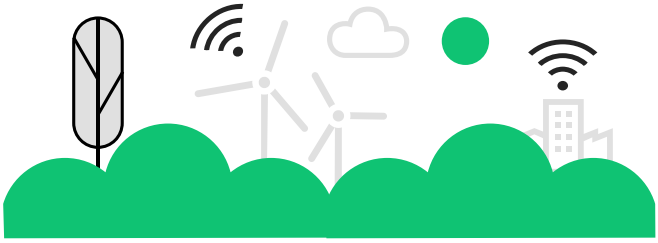
A net-zero future is within our grasp, but it's time for immediate action.

Key findings

1

More connectivity, lower carbon future
Digitalization and connectivity can help enable the transition to a greener, lower-carbon future by helping to accelerate near-term carbon reductions towards halving emissions by 2030. Increased use of connectivity should be a priority for government across the world if they are to meet their goals for decarbonization and for a strong post-COVID economic recovery.



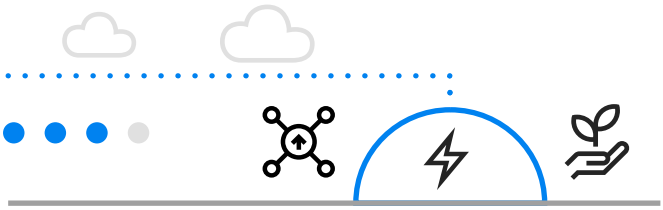


2

The transformative role of 5G
Ericsson's recent analysis of a European decarbonization scenario suggests that connectivity is a necessity for climate solutions corresponding to approximately 550MtCO2e. That's equivalent to 15 percent of the EU's total emissions in 2017. By 2030, a further 55–170MtCO2e of emissions savings per annum would be enabled by selected 5G specific use cases applied as an illustration of its potential. That's the equivalent of taking one in seven of the EU's cars off the road. 5G can play a similar transformative role in decarbonizing economies across the globe.

3

Breaking the energy curve
You might think that attempting to meet the rising demand for data could risk a sharp increase in emissions from mobile networks. However, this will not be the case with 5G. Today's 5G technology can break the energy curve, and thus accelerate the path to net-zero greenhouse gas emissions. This is a technological breakthrough that is available today.

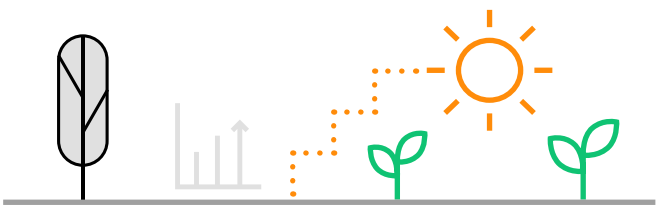


4

Faster roll-out required
Currently, according to the Ericsson Mobility Report, around 15 percent of the world's population is covered by 5G, and this is forecast to rise to 75 percent by 2027. Even if this is faster than the roll-out of 4G, it may not be enough to reach the ambitious global 2030 emissions reductions targets, as not only good coverage is required but also enough capacity and high performance of the network to fully utilize 5G's potential to combat climate change.

5

Government investment encouraged
There are things that governments can do today to accelerate the roll-out of 5G. Governments need to focus on connectivity and 5G to benefit from its ability to help achieve the shared goals of a transition to net-zero greenhouse gas emissions and a more sustainable economy, and there are a number of policy initiatives that would have a big impact in bringing this about.



The potential of 5G

Connectivity will directly enable the necessary transition to a sustainable future.

We are living in a time of unprecedented change. The ongoing pandemic. Geopolitical tensions. Technological change. However, the biggest challenge we face right now, without a doubt, is the climate crisis. In Europe, the EU has established more ambitious goals for decarbonization and is targeting a 55 percent reduction in carbon emissions relative to 1990 levels. This will require a 40 percent reduction from 2017 levels by 2030. Although not yet in line with the scientific ambition put forward by UNFCCC's Race to Zero campaign and the Exponential Roadmap, this is an important step forward. Achieving these goals will require a transformational shift across society and an acceleration of investments in technology and connectivity. To understand the importance of connectivity to the abatement of carbon emissions, Ericsson has looked into the role of connectivity in the EU and the UK decarbonization commitments.

From our peer-reviewed research, we know that while the ICT sector itself accounts for only 1.4 percent of direct global greenhouse gases, it is uniquely placed to have a positive and catalytic effect on the environmental footprints of other industry sectors.[1]

The potential for digital technologies to help other sectors decarbonize is well known and the latest connectivity technologies, including 5G, have the power to accelerate the decarbonization of entire industries, enabling them to make better use of data to improve internal processes, capture efficiencies, reduce waste and ultimately improve the service delivered to customers. Just as 4G saw the creation of the app economy and the emergence of mobile-first companies such as Airbnb, Facebook and Netflix in the US and Didi Chuxing, Tencent and Weibo in China, we should expect 5G to open the door to new opportunities across industry and society.

Among the opportunities created by 5G is the potential to make much more efficient use of energy. Ericsson believes this could have a transformational impact on how industries reduce their carbon impact. For this report, we drew on multiple experts, as well as data sources and methodologies from sources including our prior knowledge on 5G use cases, our joint research with operators on the environmental footprint of telecommunications networks, using a Net-Zero Europe scenario from McKinsey as a baseline,[2] to illustrate the carbon abatement potential of 5G.[3]

[1] ICT carbon footprint for 2015, as reported in Malmodin and Lundén (2018). The Energy and Carbon Footprint of the Global ICT and E&M Sectors 2010–2015.

[2] The McKinsey scenario was a relevant starting point as it pertained a certain level of granularity regarding included solutions. However, it is not optimized on the potential of digitalization. For this reason, some of the estimates presented in this report are considered to be rather conservative.

[3] www.mckinsey.com/business-functions/sustainability/our-insights/how-the-european-union-could-achieve-net-zero-emissions-at-net-zero-cost

Reducing CO2 emissions with 5G

Our study suggests that investment in 5G and better connectivity must be a priority if the EU is to meet its ambitious goals for decarbonization, as well as a strong post-COVID economic recovery.

The EU's Digital Decade policy will be intrinsic to achieving its Green Deal targets to lower carbon emissions. Connectivity is a necessity for many of the solutions in our baseline scenario. Besides, digitalization can help provide emissions savings in the coming years, which will allow us to hit our intermediate emissions reduction goals, in advance of mastering the hard to abate sectors in the future. Many of these benefits are already here today, including remote work, reduced travel, IoT, sensors efficiency and smart buildings automation. Other changes rely on innovation, which can be accelerated by better connectivity, for example the necessary expansion in the market adoption of low-carbon electric vehicles.

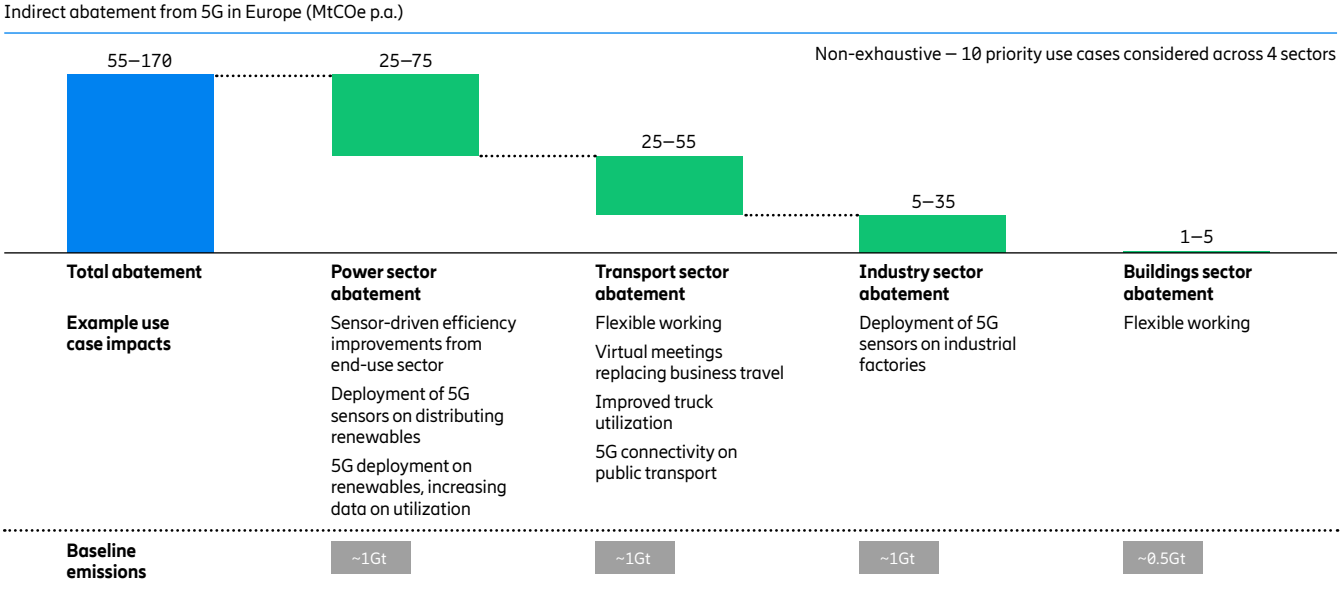
The baseline scenario from McKinsey´s Net-Zero Europe report showed one possible path towards the EU's 2030 goals. Based on this scenario it is estimated that of the 1,400MtCO2e of annual carbon savings the EU is seeking between 2017 and 2030 to meet its decarbonization goals, at least 40 percent will directly require the availability of connectivity and communications networks. To put this into perspective, by 2030, connectivity is a necessity for solutions to save 550MtCO2e each year. That saving is massive and equivalent to 15 percent of the EU's total annual emissions in 2017.

In spite of the additional use of 5G networks, the direct life cycle emissions and energy consumption must be kept within limits following a 1.5C aligned decarbonization trajectory as outlined in the international standard by the International Telecommunication Union (ITU) and their partners, and the energy consumption should be addressed by deploying network equipment with precision in line with Ericsson's Breaking the Energy Curve principles.

Besides solutions dependent on connectivity, there is huge potential for additional reductions in emissions if the enterprise applications enabled by 5G are adopted by four high-emitting sectors of the economy: power, transport, industry and buildings, each of which is expected to play a significant role in the decarbonization in Europe.

To illustrate this, we considered 10 specific 5G use cases, including the use of sensors to drive efficiency improvements; better use of data in renewable energy; the digitalization of factories; improved truck utilization; 5G connectivity on public transport; and flexible working. It was estimated that these 5G use case examples could

Figure 1: 5G use cases enable incremental indirect abatement



jointly enable 55–170MtCO2e of carbon abatement, which is only made possible through 5G technology. The most significant contributions in this scenario occurred in the power sector (up to 75MtCO2e) and transport (up to 55MtCO2e), see Figure 1. To put this into context, 170MtCO2e is equivalent to taking one in seven of the EU's cars off the road.[4]

In other words, if state-of-the art connectivity infrastructure based on 5G would be used in line with our examples and added to the solutions of the baseline scenario for which connectivity is a necessity, by 2030 the annual emissions reductions associated with better connectivity – as a prerequisite or directly – could correspond to 20 percent of the EU's total emissions in 2017 (an estimated 720MtCO2e).

A 20 percent emissions reduction represent an enormous opportunity. To put this statistic in context, that's equivalent to the total annual emissions of Spain and Italy combined,[5] and greater than the annual EU emissions resulting from agriculture and international aviation combined.[6]

As shown by these examples, state-of-the-art connectivity will be an important enabler of further incremental carbon abatement, but it will not be possible to achieve the full potential of these greenhouse gas savings if the roll-out of 5G infrastructure with good capacity and performance continues at its current pace. To realize these benefits, the EU and the UK need to catch up with the likes of China and the US in deploying and harnessing the potential of 5G technology.

[4] www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
[5] www.eea.europa.eu/themes/climate/trends-and-projections-in-europe/climate-and-energy-country-profiles/country-profiles-greenhouse-gases-and-1
[6] www.eea.europa.eu/data-and-maps/daviz/ghg-emissions-by-aggregated-sector-5/#tab-chart_3

Breaking the energy curve

Using established technology that exists today, we can support massively increased data traffic without increasing energy consumption.

Before we can fully explore the 5G enablement potentials, we need to make sure we have the most optimal technology in place. Ericsson estimates that mobile network operators spend USD 25 billion a year on the electricity needed to keep the data flowing, whether it's streaming videos on your phone or guiding a driverless car, sending and receiving data uses energy.

The financial cost is only one aspect, of course. The environmental cost of increased energy consumption is even more serious. Given the tremendous increase in data traffic, driven by the increasing digitalization of the world's leading economies, is it possible to avoid a commensurate increase in energy and CO2 emissions?

5G is a game-changer. It's built on the most energy-aware standard to date, which Ericsson is proud to have had an active role in developing.

Despite 5G's environmental credentials, energy consumption would increase dramatically if 5G networks were deployed in the same way as 3G and 4G. Some communications service providers have estimated that their energy consumption would need to double to cope with the increased volume of data traffic that they expect. This is not sustainable from a cost or environmental perspective.

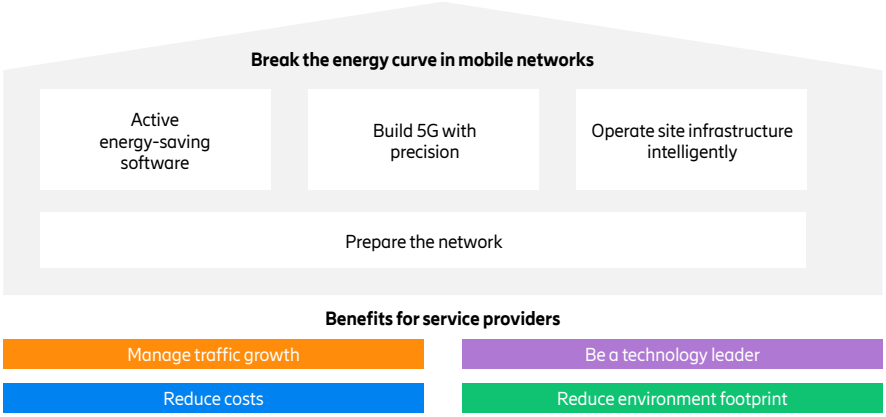
The 5G standard makes it possible to reduce energy consumption significantly. Features such as smart sleep modes mean that energy is only consumed when it is needed. In preparing for and introducing 5G, service providers can modernize and improve existing networks which result in both energy and physical footprint savings as the new kit is so much more compact. These are just some of the efficiencies that fast and effective data transmission offer.

What this means is that the energy curve can be broken if 5G is deployed in the right and optimal way. To demonstrate how, Ericsson has drawn on research stretching back more than 20 years, including analysis of some of the most ambitious 5G deployments in the world.

A holistic approach

By testing and refining different solutions, Ericsson has developed a holistic approach that offers the potential for significant energy savings. The right approach will vary according to a network's design and the services it supports, but it has four key steps, illustrated in Figure 2.

Figure 2: Reducing CO2 emissions with 5G



1. Preparing the network

Modernizing networks with the latest technology can create significant energy savings. In many cases, the financial case is equally compelling. In low-traffic areas, the cost of modernization can be returned in less than three years based on energy bills alone. In addition, 5G connectivity supported by the upgraded equipment will support new services that will open up new revenue streams for services providers.

The latest hardware is smaller, lighter and much more energy efficient. Modern solutions, such as Ericsson Radio System and Ericsson Spectrum Sharing, can run 4G and 5G services simultaneously, without the need to add additional energy-consuming hardware and post-2015 Ericsson Radio Systems equipment is already 5G-ready.

In the past, the standard practice was to add new equipment to the installed base, which was typically much less energy efficient. Ericsson believes that this practice must change.

Migrating legacy services to the latest technology provides a perfect opportunity to reduce the energy spent on older radio technologies.

2. Activating energy-saving software

Our software has energy-savings designed into its DNA. Some features can be activated immediately thanks to software that automatically switches equipment on and off in line with traffic demand. Others offer the possibility of additional savings through the application of machine learning.

Features such as Micro Sleep Tx and the Low Energy Scheduler Solution can reduce radio equipment energy consumption by up to 15 percent while maintaining the same user experience and without the need for any additional hardware investments.

Measuring energy consumption and analyzing it in relation to other aspects of network performance is crucial for informed decision-making. The latest software offers a helicopter view of energy use, allowing network operators to identify possible energy savings.

In our case, Ericsson Network Manager, Ericsson Network IQ Statistics and Ericsson Energy Report provide important insights to allow service providers to improve network energy performance.

3. Building 5G with precision

By building with precision, service providers can optimize the performance of their networks on the new 5G frequencies. Building 5G with precision enables network-wide power savings and reduces the total cost of ownership.

The energy consequences of 5G deployment will affect service providers' strategies and equipment choices. Careful evaluation is required.

Optimizing the network can bring about material improvements in the distribution of traffic loads. This will lead to significant energy savings.

4. Operating site infrastructure intelligently

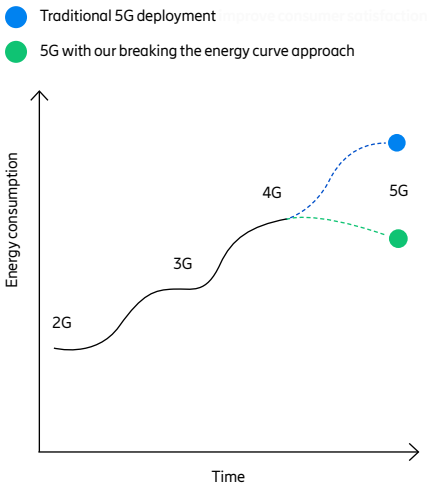
By making use of artificial intelligence (AI), service providers can operate site infrastructure more proactively, offering the chance for further energy savings. Customer cases show that service providers have reduced site energy consumption by up to 15 percent through intelligent site control solutions.

Growing traffic leads to a demand for more equipment and increased system complexity. Automation and AI technologies allow service providers to schedule maintenance predictively, lowering operations costs, carbon emissions and site power consumption.

The energy savings available from this approach are substantial. These building blocks can be used to modernize existing networks or deploy new ones, using RAN technology that exists today.

Presented with this clear solution, it's an industry responsibility to address all the different parts of the network holistically and reduce energy consumption with immediate effect.

Figure 3: Saving energy with 5G



Key statistics

1.5C

We are racing against time to deliver the emissions reductions necessary to limit global warming to 1.5C.

15%

Solutions such as the development of renewable energy generators could reduce EU CO2 emissions by 550 million tons – nearly half of the emissions created by the entire EU energy supply sector and 15 percent of the EU's total annual emissions in 2017.

20%

These savings would bring the emissions reduction to nearly 20 percent of the EU's total annual emissions in 2017, which is equal to that of Spain and Italy combined.

1 in 7

5G technology across 4 high-emitting sectors could create annual emissions savings equal to taking 1 in 7 cars (over 35 million cars) off EU roads.

With 5G roll-out, Europe is strolling towards a more digital, low-carbon future, while other regions are sprinting in the same direction. Policymakers and regulators have a major role to play here by realizing the competitive economic, social and sustainable potential of 5G.

Börje Ekholm, President & CEO, Ericsson

Accelerating 5G roll-out beyond pioneer markets

Delays to 5G roll-out could hamper efforts to halve emissions by 2030 and reach net-zero in 2050.

We are in a race against time to deliver the drastic emissions reductions necessary to stay on track to limit global warming to 1.5C. To align with scientific decarbonization pathways, we need to deploy the technologies that can deliver necessary short- and long-term carbon reductions.

Connectivity in general, and 5G in particular, is one of these fundamental technologies. However, at present, the roll-out of 5G infrastructure is simply not advanced enough to fulfill this technology's transformative potential.

By looking at data from the Ericsson Mobility Report, we can explore:

- how far behind optimal 5G roll-out we are
- what the implications are of delays on the world's urgent emissions reductions targets
- how these delays vary from region to region
- what it means for each country's green and economic agendas

The Ericsson Mobility Report is a twice-yearly analysis paper that provides industry-leading projections and analyses of the latest trends in the mobile industry, including mobile data traffic and 5G population coverage. For a decade, the Ericsson Mobility Report has established itself as a leading source of insight for industry experts and policymakers, forecasting over a six-year period to predict the state and future of the mobile world.

This year, Ericsson has built upon our traditional methodology, providing a regional breakdown to forecast how 5G coverage will change over the next six years (up to 2027).

By the end of 2020, according to the Ericsson Mobility Report, 5G covered around 15 percent of the world's population.[7] This means that a majority of urban, residential, industrial and rural areas are located in places with no 5G technology available and are thus unable to take advantage of 5G's carbon abatement potential.

When we look forward to 2027, just 3 years off from our ambitious global 2030 decarbonization targets, the new forecast data estimate that global 5G coverage will be at around 75 percent. This means that a quarter of the world's population will still not have access to 5G technology.

This disparity in 5G coverage should be placed in the context of the global race for a sustainable post-pandemic recovery. As countries around the globe look to rebuild more equitable and environmentally sustainable societies in the wake of COVID-19, 5G will be a crucial enabler of industrial and societal ecosystems that can halve the world's carbon emissions by 2030, while delivering an equitable and dynamic economic recovery from the pandemic. Each country is looking to assert itself as a leader in the new, net-zero greenhouse gas emissions economy, and 5G will be a critical tool in enabling these economic and environmental shifts.

If we want to enjoy the contributions that 5G connectivity can bring in our race to 2030 decarbonization goals, more needs to be done. Even if many countries will have achieved nationwide 5G coverage by 2027, there will still be countries and regions far from that goal. As 5G is an enabler of emissions reductions, it should be one of the technologies rolled out as an integrated component of our climate strategies. Coverage will, of course, vary by region, and according to the Ericsson Mobility Report, 5G roll-out will be strongest in North America and North East Asia, with over 95 percent population coverage achieved by 2027. Europe will be some distance behind its regional competitors, with only over 80 percent population coverage. Finally, regions such as Africa and Latin America will be left far behind, with roughly 35 percent and 50 percent population coverage respectively.

[7] www.ericsson.com/en/mobility-report/dataforecasts/network-coverage

It is worth emphasizing that near universal 5G roll-out is not an unobtainable pipedream. Some regions are well on their way to achieving this and are already reaping the rewards. South Korea already has over 90 percent population coverage for 5G mid-band technology. This compares to less than 10 percent 5G mid-band coverage in the UK and the EU.[8] The varying pace of 5G roll-out is having a meaningful impact on nations' economic fortunes: It has been forecast that 5G will add at least USD 30.3 billion to South Korea's economy by 2025 alone, which represents 1.51 percent of its GDP.[9]

5G

will be a critical tool in enabling economic and environmental shifts

5G in use today

The Ericsson USA 5G smart factory, in Lewisville, Texas, is a working telecom equipment manufacturing facility that realizes the potential of 5G with Industry 4.0 (4IR). It leverages real-time data and intelligent automation to deliver the next generation of factory: more effective, more efficient and with more jobs.

Our factory uses the unique properties of 5G connectivity – ultra-high speed, ultra-low latency and high security – to power a highly automated smart factory, that is leaps ahead of standard manufacturing processes. Our factory has over 200 robots in operation, and this level of automation, made possible by 5G, has produced an impressive 2.2 times improved output per employee when compared to a similar site without such automation and 4IR improvements.

5G-enabled next-generation technologies, including AI and machine learning, have allowed us to implement innovative ICT solutions to increase our efficiency and reduce resource consumption, with our smart factory being designed to be more energy-efficient than a baseline factory, and 100 percent of the electricity we use on-site comes from renewable sources. Our site has even achieved LEED Gold and LEED Carbon Zero certification.

We have invested USD 100 million in our next generation factory, creating over 200 new jobs.

Source: ericsson.com/en/about-us/company-facts/ericsson-worldwide/united-states/5g-smart-factory

[8] www.lightreading.com/5g/ericsson-says-fears-about-europes-5g-lag-have-come-true/d/d-id/770228

[9] KT Economic and Management Research Institute, 5G Ui Sahoegyeongjejeok Pageubhyogwa Bunseok (August 1, 2018)

Next steps

As we push the world to net-zero emissions, digital technology and communications can play an increasingly central role in delivering the innovations and efficiencies we need to mitigate the impact of climate change.

5G has the potential to enable a high volume of emission reductions, enabling carbon abatement and innovation across global economies. Crucially, these emissions reductions can be delivered in the near term, helping the world to follow our urgent decarbonizations pathways. However, many of these solutions need a state-of-the-art infrastructure with 5G in place to support them and, at present, the roll-out of such infrastructure is way behind optimal pace. To fulfill this technology's transformative potential, we call on policymakers to take the following steps.

1

Maximize connectivity service providers investment incentives:

- Release 5G spectrum and trade off spectrum fees for deployment commitments.
- Remove deployment obstacles for quicker and more cost-effective deployment.
- Allow for sustainable market structure to ensure service providers have sufficient scale.

2

Accelerate deployment by bringing forward investment decisions:

- Implement the IMF's recommendation to give infrastructure investment an adrenaline shot "by temporary investment tax credits to bring forward investment … to accelerate infrastructure investment, especially on digital and green technologies".

3

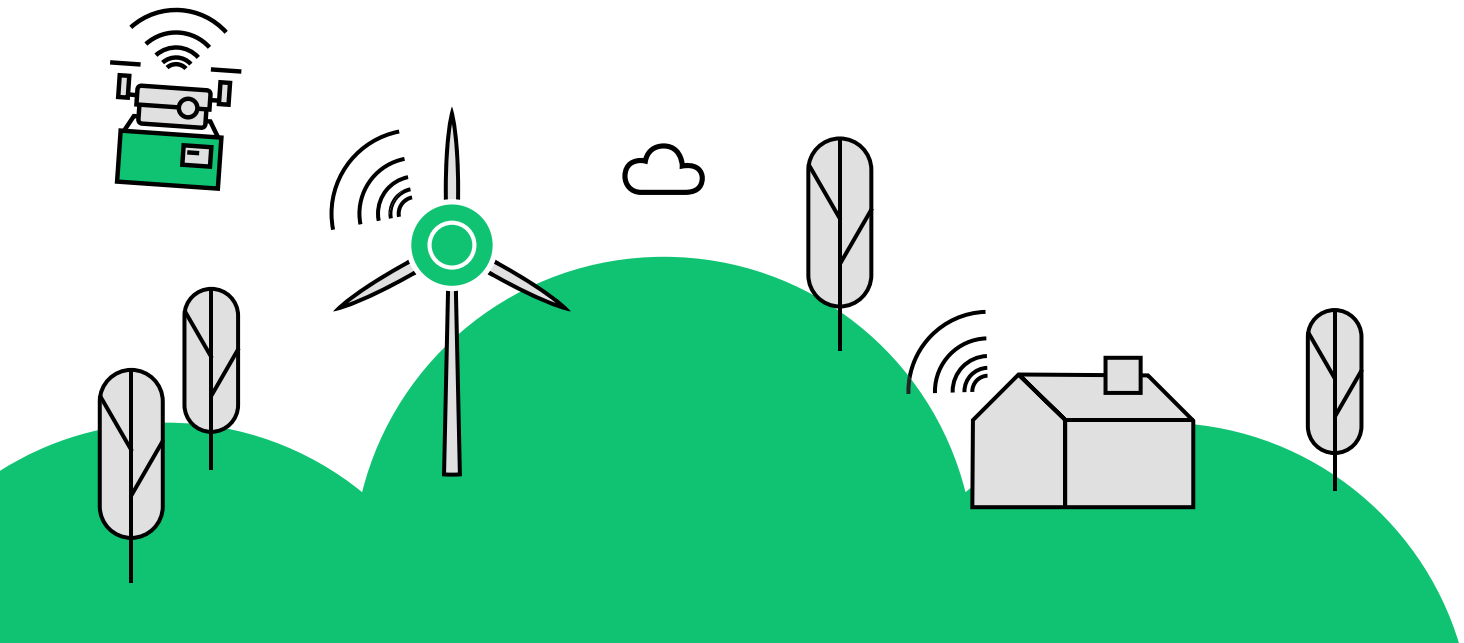
Amplify and crowd-in private sector investment:

- Use targeted public funding to drive 5G in rural areas and close the digital divide.
- 5G Fixed Wireless Access has a cost to benefit ratio greater than 10 in rural areas because deployment is much cheaper and quicker than alternatives.

4

Catalyze the demand side:

- Facilitate cross-sector innovation and collaboration on the 5G open innovation platform by removing regulatory uncertainty.
- Promote the 5G transition for public services so they become anchor tenants.
- Incentivize and, where appropriate, subsidize small and medium-sized enterprise adoption of 5G enabled digital transformation.



In this report, we have made the case that improved connectivity, and specifically investment in 5G networks, will have an important role to play in enabling the world's governments to address the challenge of climate change. On one level, this conclusion is unavoidable. Growing populations, changing technology and the digitalization of our economies mean that communications networks will be required to carry a rapidly growing volume of data traffic.

Luckily, Ericsson's analysis shows that the electricity consumption and carbon emissions of networks need not follow the same path. Modernizing networks through the skillful deployment of 5G technology will enable them to carry much more data without a commensurate increase in energy consumption and using renewable energy to feed them will allow for decarbonization of network in line with 1.5C aligned trajectories.

However, the climate role for 5G goes way beyond its footprint. Innovation across multiple fronts will be necessary for the world to meet the demanding targets for carbon abatement. Our analysis shows that many of the necessary advances in renewable energy and industry will be dependent on connectivity. Based on a scenario for the EU, we estimate that carbon abatement solutions for which connectivity is a necessity amount to 550MtCO2e, or about 15 percent of the reduction that the EU needs to make from 2017 levels if it is to meet its 2030 targets.

Moreover, 5G is itself a platform for innovation, creating new opportunities for businesses to capture and make better use of their data and to manage their costs more effectively, including energy. Analysis of some 5G use case scenarios suggests the potential for 55–170MtCO2e of carbon abatement additional to the baseline scenario.

In common with the rest of the telecom industry, Ericsson will do what it can to turn the promise of 5G into a reality. But policymakers can help by augmenting their 5G ambition and clearing some of the obstacles, practical, regulatory and financial, that are holding back the 5G transition.

Methodology

Ericsson Mobility Report:

Population coverage is estimated using a database of regional population and territory distribution, based on population density. This is then combined with proprietary data on the installed base of radio base stations (RBS), together with estimated coverage per RBS for each of six population density categories (from metro to wilderness). Based on this, the portion of each area that is covered by a certain technology can be estimated, as well as the percentage of the population it represents. By aggregating these areas, world population coverage per technology can be calculated.

European decarbonization scenario:

In 2021, Ericsson examined the potential role that connectivity will have in reducing carbon emissions and supporting the EU in meeting its 55 percent 2030 decarbonization target.

The new Ericsson analysis used the McKinsey Net-Zero Europe report,[10] which articulates a potential pathway to delivering the EU's 55 percent emissions reduction as a baseline. For this scenario, the solutions for which connectivity is a necessity were identified, and additional potential associated with the 5G examples were estimated based on interviews with experts on the potential of digitalization in the addressed sectors.

While this analysis by no means is intended to be comprehensive nor exhaustive, we believe that this study is a useful contribution to the twin policy debates of the Green Deal and Digital Economy, as part of a post-COVID economic recovery for Europe.

[10] www.mckinsey.com/business-functions/sustainability/our-insights/how-the-european-union-could-achieve-net-zero-emissions-at-net-zero-cost

About Ericsson

Ericsson enables communications service providers to capture the full value of connectivity. The company's portfolio spans Networks, Digital Services, Managed Services, and Emerging Business and is designed to help our customers go digital, increase efficiency and find new revenue streams. Ericsson's investments in innovation have delivered the benefits of telephony and mobile broadband to billions of people around the world. The Ericsson stock is listed on Nasdaq Stockholm and on Nasdaq New York.

www.ericsson.com

Ericsson
SE-164 80 Stockholm, Sweden
Telephone +46 10 719 0000
www.ericsson.com

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