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# Nokia Group - Climate Change 2021

## C0. Introduction

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### C0.1

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#### (C0.1) Give a general description and introduction to your organization.

We create technology that helps the world act together.

As a trusted partner for critical networks, we are committed to innovation and technology leadership across mobile, fixed and cloud networks. We create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Adhering to the highest standards of integrity and security, we help build the capabilities needed for a more productive, sustainable and inclusive world.

For our latest updates, please visit us online [www.nokia.com](http://www.nokia.com)

## C0.2

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#### (C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2020	December 31 2020	No	<Not Applicable>

## C0.3

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#### (C0.3) Select the countries/areas for which you will be supplying data.

## C0.4

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## C0.5

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**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Operational control

## C1. Governance

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### C1.1

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**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

#### C1.1a

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**(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Board Chair	The Board's responsibilities include overseeing the structure and composition of our top management and monitoring legal compliance and the management of risks related to our operations. In doing so, the Board (which is led by the Board Chair) may set annual ranges and/or individual limits for capital expenditures, investments and divestitures and financial and non-financial commitments that may not be exceeded without a separate Board approval. Climate-related risks are integrated to the multi-disciplinary company-wide risk assessment and management processes. In risk management policies and processes, the Board's role includes risk analysis and assessment in connection with financial, strategy and business reviews, updates and decision-making proposals. Risk management policies and processes are integral parts of Board deliberations and risk-related updates are provided to the Board on a recurring basis.



committee	company, covering a variety of environmental and social matters , and it periodically reviews the company's related targets and performance. These environmental matters include climate-related issues. The Board Committees monitor environmental and social developments in their respective areas of responsibilities, which in 2020 included for the Audit Committee the implementation planning of climate related financial reporting and reviewing the use of conflict minerals in the company's products, Personnel Committee the incorporation of environmental and social targets in the incentive structures, and Corporate Governance and Nomination Committee the assessment of the environmental, social and governance (ESG) related governance trends. While we have always believed that ESG is core to how we run our business and our role in society, 2020 has demonstrated clearly the importance of our role in society and the Personnel Committee decided that it would now be appropriate to formalize this as part of our incentive structure. It was decided that for 2021, the short-term incentive structure of Nokia Group Leadership Team (GLT) will focus on three key metrics, one of them being ESG to deliver on our responsibilities to reduce carbon emissions and become a more diverse employer.
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## C1.1b

### (C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding major plans of action Reviewing and guiding risk management policies Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	Minimum once a year, the board has an Enterprise Risk Management (ERM) review of our key risks and opportunities, including risk factors from climate change related issues. Further oversight to Climate change related issues is provided by the board's annual sustainability review which includes such matters as review of the targets, key actions and performance. The board reviews our quarterly ESG disclosures, which include climate topic.

## C1.2



Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Sustainability committee	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually
Chief Financial Officer (CFO)	<Not Applicable>	Other, please specify (Climate-related topics are reported in our external quarterly reports which are prepared under supervision of our CFO and the Disclosure Committee. Our CFO also functions in the role of Chief Risk Officer (CRO).)	<Not Applicable>	Quarterly
Other C-Suite Officer, please specify (Chief Marketing Officer (CMO))	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually
Other C-Suite Officer, please specify (Group Leadership Team (GLT))	<Not Applicable>	Other, please specify (The Group Leadership Team decides on the environmental and social approach and key targets, and the key targets are incorporated into the ongoing performance management and related monthly business reviews of the business groups by the GLT. )	<Not Applicable>	Quarterly

## C1.2a

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**

### Sustainability Committee

Our sustainability committee is called the Sustainability Council. The role descriptions of the committee members during 2020 can be found below

Head of Sustainability

VP Investor Relations

VP Corporate Strategy

Head of Customer & Delivery Quality



VP Supply Network & Engineering

Chief Security Officer

Head of People and Organization Development

VP Nokia Procurement

VP, Chief Compliance Officer

The Sustainability Council consists of senior representatives including management representatives with climate-related responsibilities from units such as product development, real estate, and procurement. The council is managed by the Head of Sustainability who in 2020 reported to the head of Marketing and Corporate Affairs, also referred to as our Chief Marketing Officer (CMO). The Council typically meets at least bi-annually and more often on request. It ensures alignment of sustainability strategy, priorities, and the implementation of sustainability activities. It reviews the materiality, targets and overall performance of various sustainability related topics. This includes the assessment and monitoring of climate change related topics. Performance is evaluated both against short- and long-term targets. The board has annual sustainability reviews in their meetings with both CMO (until 2020) and Head of Sustainability as a representative of the Sustainability Council. These reviews include e.g. reviewing sustainability targets, key actions and performance (including climate-related issues).

## CMO

Nokia Group Leadership Team and its members are responsible for the overall management of the company including climate related issues when relevant to their area of responsibility. Our Chief Marketing Officer (CMO) was a member of the Group Leadership Team in 2020 and was responsible for sustainability (including climate related topics) at the executive management level as leader of the Marketing and Corporate Affairs group. During 2020, the CMO reviewed the status and provided oversight of Nokia's key sustainability programs and targets as part of quarterly business reviews. The board has annual sustainability reviews in their meeting with both CMO (until 2020) and Head of Sustainability as a representative of the Sustainability Council. These reviews include e.g. reviewing sustainability targets, key actions and performance (including climate-related issues).

## CFO

Our Chief Financial Officer (CFO) is a member of the Group Leadership Team. Nokia reports on climate-related topics in our external quarterly financial reports which are reviewed by the board. Our CFO also has the role of Chief Risk Officer and is responsible for driving the



ment and management processes. Our ERM process related risk register is regularly updated, and risk-related updates are provided to the board by the business on a recurring basis.

## GLT

The Group Leadership Team decides on the environmental and social approach and key targets, and the key targets are incorporated into the ongoing performance management and related monthly business reviews of the business groups by the Group Leadership Team. These key targets include climate-related targets.

Since the beginning of 2021 Nokia has had in place a renewed organizational structure, which has brought changes to the above described positions and committees. We will be reporting based on the new structure in our next CDP disclosure for year 2021.

## C1.3

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

## C1.3a

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Corporate executive team	Monetary reward	Emissions reduction target	While we have always believed that ESG is core to how we run our business and our role in society, 2020 demonstrated clearly the importance of our role in society and the Personnel Committee decided that it would now be appropriate to formalize this as part of our incentive structure. For 2021, the short-term incentive structure of Nokia Group Leadership Team (GLT) will focus on three key metrics, one of them being ESG to deliver on our responsibilities to reduce carbon emissions and become a more diverse employer.



## C2. Risks and opportunities

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### C2.1

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**(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

#### C2.1a

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**(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

	From (years)	To (years)	Comment
Short-term	0	1	Covers our annual plan
Medium-term	1	3	Covers our long-range plan (LRP) period of 3 years
Long-term	3	10	Long term is typically up to 10 years but in some cases we will consider a longer time horizon.

#### C2.1b

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**(C2.1b) How does your organization define substantive financial or strategic impact on your business?**

Nokia risk management covers strategic, operational, financial, compliance and hazard risks and opportunities. Climate change related issues are part of this taxonomy. Under the Nokia Enterprise Risk Management (ERM) framework, significance of individual risk factors is evaluated against qualitative criteria on a scale from 0 to 4, where 0 refers to "no impact" and 4 implies a major impact on our strategic roadmap. We consider rating 3 substantive in the overall business management context. However, in our bottom-up risk assessment process we maintain a risk register consisting of risks and opportunities with value over EUR 20 million. We have used the risk register as the basis for our CDP disclosure and con-



In Nokia ERM framework we typically quantify risks and opportunities over a three-year time horizon. However, it is not a limiting factor to identifying and assessing key risks and opportunities. In our strategy planning we typically use a longer time horizon and in our sustainability risks materiality analysis we consider risks and opportunities extending beyond 10 years.

## C2.2

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### (C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

#### **Value chain stage(s) covered**

Direct operations  
Upstream  
Downstream

#### **Risk management process**

Integrated into multi-disciplinary company-wide risk management process

#### **Frequency of assessment**

More than once a year

#### **Time horizon(s) covered**

Short-term  
Medium-term  
Long-term

#### **Description of process**

Nokia risk management covers strategic, operational, financial, compliance and hazard risks and opportunities, including climate change related issues. Key risks and opportunities are primarily identified against business targets either in business operations or as an integral part of strategy and financial planning. The Nokia Enterprise Risk Management (ERM) Policy defines key principles of Nokia ERM and apply to all Business Groups, transversal, central and support functions. One of the core principles is that each entity head is an owner of the risks in the area of responsibility and is responsible to identify and manage and mitigate key risks and capture opportunities (although all employees are responsible for identifying, analyzing and managing risks as appropriate and applicable to their roles and duties.) Nokia's process for identifying, assessing and responding to climate-related risks and opportunities covers direct operations, as well as upstream and downstream value chains. The process covers short-, medium- and long-term time horizons. Risk identification and assessment process is a combination of top-down and bottom-up approaches. The bottom-up process consists of a regular risk and opportunity assessment update, where the entities review the qualitative ratings and update financial



identified/document. Bottom-up update takes place typically twice in a year. Key risks and opportunities are managed and monitored as part of business performance management. For climate related issues, the Sustainability team and the leadership level Sustainability Council constitute the top-down approach. The council is designed to give appropriate exposure to sustainability related risks and it typically meets quarterly. It ensures alignment of sustainability strategy, priorities, and the implementation of sustainability activities across the business. It also reviews the materiality, targets and performance of various sustainability topics, including climate change. A case study of how the described process is applied to physical risks/opportunities: Physical risks such as cyclones and other natural catastrophes are identified predominantly by our HSE (health, safety & environment) unit. Risks with impact over EUR 20 million are included in the ERM risk register. Risk owners determine the operative treatment of risk and are responsible for driving action plans. In addition, environmental incidents are managed in our HSE incident management process. Nokia Business Continuity Plans (BCPs) support the continuity of critical business processes during a significant business disruption, regardless of the source of the disruption – man-made or environmental. Each plan includes risk assessment and response procedures for four different scenarios: Loss of Building, Loss of Personnel, Loss of Applications / Systems and Loss of Suppliers. This provides input also for the ERM process. Updates to BCPs are required twice each year and each plan is tested at least once every three to five years, based on risk. Plans covering manufacturing facilities and other time-sensitive critical functions are tested most often. When Nokia relies on a supplier to perform critical functions, the Nokia Supply Chain and Procurement Organization ensures that the supplier has a Business Continuity Plan. A case study of how the described process is applied to transitional risks/opportunities: An example of transitional risk is emerging regulation, such as the evolving scope of the EU Green Deal, for example. Potential risk associated with relevant emerging regulation is identified mainly by our Sustainability, Environment, Legal & Compliance and Government Relations teams. Risks with impact over EUR 20 million are included in the ERM risk register. Risk ownership follows business ownership and the risk owners are responsible for deciding about operative treatment of the risk and driving action plans.

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## C2.2a

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**(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?**

	Relevance & inclusion	Please explain
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regulation	always included	for Nokia as we procure components and manufacture goods on a global basis. Climate change related taxes and other regulations that have been implemented in various parts of the world may increase both our and our customers' operating costs, potentially impacting - to a lesser extent - also product pricing and demand. An example of a current regulation risk we consider is the EU energy efficiency directive on the energy performance of buildings.
Emerging regulation	Relevant, always included	Implementation of taxes/regulations may increase the cost of energy and components for Nokia as we procure components and manufacture goods on a global basis. Climate change related taxes and other regulations that may increase operating costs and to a lesser extent impact also product pricing or demand are being implemented in various parts of the world. Such new regulation might cause additional costs to Nokia. An example of a relevant emerging regulation risk that we consider is the evolving scope of the EU Green Deal, including e.g. EU Taxonomy for sustainable activities, as well as the development of carbon pricing mechanisms around the world.
Technology	Not relevant, explanation provided	Technology is not considered a relevant risk category in our business, as we consider developments in technology mainly as an opportunity. As an example of a technology related opportunity, we consider e.g. the impact of 5G technology on energy use, and we have designed solutions such as the ReefShark chipset to improve network energy efficiency.
Legal	Relevant, sometimes included	An example of the legal risks that we consider in many risk assessment areas is whether Nokia has processes in place to monitor changes in the laws and regulations, including those related to climate risk. Another example of legal risk that we consider is the possibility of litigation/claims brought by governments, private organizations, or individuals for claims arising from alleged failures to meet legal requirements for climate related matters, failure to comply with new or changed disclosure requirements, or for breaches of climate-related contractual commitments and representations that may be included in the customer bid and contract documentation.
Market	Relevant, always included	An example of a market risk that we consider is a possible increase of e.g. social unrest, war, and other political/economic risks as a result of climate change. Such events could have a negative impact on the economy and consumer/customer purchasing power. We evaluate the Market category also from the perspective of opportunities, as the demand for solutions that help our customers to reduce their GHG emissions and mitigate climate change impacts may increase.
Reputation	Relevant, sometimes included	Many of the climate change related issues, for example, how we manage the energy efficiency of our products and buildings, may have negative reputational risks. Reputation and brand related environmental risks are assessed as a part of our certified (externally audited) ISO 14001:2015 EMS process.
Acute physical	Relevant, always included	The review of acute physical risks to our facilities, customers, supply chain etc. is part of our Enterprise Risk Management process. The identified risks are assessed and ranked in the ERM risk assessment process based on the possible impact, probability and time frame. Examples of acute physical risks we consider include e.g. tropical cyclones, natural catastrophes, and pandemics, and related severe damage to a production facility of a critical supplier, our operations or our customer etc. Environmental incidents are additionally managed through our HSE incident management process. Nokia Business Continuity Plans (BCPs) support the continuity of critical business processes during a significant business disruption, regardless of the source of disruption – man-made or environmental. Each plan includes risk assessment and response procedures for four different scenarios: Loss of Building, Loss of Personnel, Loss of Applications / Systems and Loss of Suppliers. This provides input also for the ERM process. Updates to BCPs are required twice each year and each plan is tested at least once every three to five years, based on risk. Plans covering manufacturing facilities and other time-sensitive critical functions are tested most often. When Nokia relies on a supplier to perform critical functions, Nokia Supply Chain and Procurement Organization ensures that the supplier has a Business Continuity Plan in place.



physical	sometimes included	chain is part of our Enterprise Risk Management process. As an example of a chronic physical risk, we consider water scarcity and related impacts on our operations. The identified risks are assessed and ranked in the ERM process based on the possible financial impact, probability and time frame.
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## C2.3

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

### C2.3a

**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

**Identifier**

Risk 1

**Where in the value chain does the risk driver occur?**

Upstream

**Risk type & Primary climate-related risk driver**

Acute physical	Increased severity and frequency of extreme weather events such as cyclones and floods
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**Primary potential financial impact**

Decreased revenues due to reduced production capacity

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

In 2020, about 22% of our employees were located in Asia-Pacific and approximately 18% of our sales were made in the same region (EUR 3 847 million out of EUR 21 852 million). Some of our suppliers have their manufacturing plants in the areas, such as East and South East Asia, that can be sensitive to tropical cyclones. The probability of tropical cyclone caused by climate change causing severe damage to a production facility of a critical supplier, our operations or our customer is rather low. However, we recognize that the likelihood of event occurrences may increase due to climate change in the future. In case such a severe damage would happen, it could lead to impacts (e.g. lost or deferred sales and service failure), or it could have an impact on supplier operations so that an impacted supplier or Nokia may need to look for alternative supply sources. Also, our customers are in some cases vulnerable to changes in physical climate parameters.

**Likelihood**

Unlikely

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

20000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Some of our suppliers have their manufacturing plants in the areas such as East and South East Asia that can be vulnerable to tropical cyclones. In case such a severe event would happen, we estimate annualized financial impact of approximately EUR 20 million for a scenario of a regional, one week shutdown of internal business operations, resulting in decreased revenues due to the reduced production capacity. The approximate impact of EUR 20 million has been estimated assuming less than EUR 3 million impact per day for a period of seven days ( $7 \times 3 = 21$ ). Other potential scenarios could include lost or deferred sales, service failure (that may lead to potential contractual claims) or product rollout failure. This calculation is provided purely as a sensitivity and should not be interpreted to imply accuracy on the financial impact of the risk described.

**Cost of response to risk**

1000000

**Description of response and explanation of cost calculation**

Looking for alternative supply sources is a part of our normal sourcing process. In addition, Nokia has insurance for property damage covering buildings, equipment and machinery. We also have coverage for certain business interruptions covered by applicable insurance policies, whereby Nokia aims to manage the impact of natural catastrophe perils such as tropical cyclones. We maintain business continuity plans to ensure that products, services and solutions continue to be delivered at acceptable levels during a significant disruption to operations. Business continuity planning includes for example easy transfer between sites. These management actions often involve specific case studies, such as a deep dive into the conditions in India that suffer from severe flooding, to map the potential risk areas, impacts and risk management related to our internal IT operations. In addition, the Real Estate organization considers both adaptation and mitigation of Climate Change in its site selection and operations. The impact of extreme weather conditions is considered as part of the selection of new office locations. Sustainability criteria are included in the selection documentation. These activities are a part of our normal sourcing process without significant additional cost implication expected (i.e., less



## Comment

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### Identifier

Risk 2

### Where in the value chain does the risk driver occur?

Direct operations

### Risk type & Primary climate-related risk driver

Emerging regulation Carbon pricing mechanisms

### Primary potential financial impact

Increased direct costs

### Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

### Company-specific description

Climate change related taxes and other regulations are being implemented in various parts of the world. Although Nokia is not an energy-intensive company (current annual energy costs average less than EUR 100 million, approximately EUR 98.1 million in 2020), such regulations may increase operating costs and to a lesser extent product pricing and may have a negative impact on demand. Implementation of taxes/regulations may result in an increase in cost of energy and components for Nokia because we procure components and manufacture goods on a global basis. These regulations can also impact the whole value chain, increase the price of products and reduce the purchasing power of consumers and our business customers. However, in our risk analysis the assumption is that the impact is long term and that the adverse impact on our industry or Nokia would not be disproportionately higher than on other industries or to our competitors at least to a significant extent.

### Time horizon

Long-term

### Likelihood

About as likely as not

### Magnitude of impact

Medium

### Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

### Potential financial impact figure (currency)

29400000

### Potential financial impact figure – minimum (currency)

<Not Applicable>



## Explanation of financial impact figure

Our energy cost was approximately EUR 98.1 million in 2020 (vs. net sales of approximately EUR 21 852 million in 2020). Assuming a 30% increase in our energy cost due to a potential increase of fuel/energy taxes or other changes in regulations, our direct costs would increase annually by approximately EUR 29.4 million. The estimate has been calculated as follows:  $98.1 * 0.3 = 29.4$ . This calculation is provided purely as a sensitivity and should not be interpreted to imply accuracy on the financial impact of the risk described.

## Cost of response to risk

1000000

## Description of response and explanation of cost calculation

Our experts in functions such as Legal, Sustainability and Procurement monitor related regulations and legislative developments, such as the EU energy efficiency directive on the energy performance of buildings and work throughout our value chain to prepare for changes. We are continuously implementing measures to increase our own and our customers' energy efficiency. As a case study on how we reduce the risk of increased energy costs related to potential carbon price increase, in 2020 we continued to reduce our energy consumption and related emissions. Our GHG emissions from facilities decreased by 19% as compared to 2019. Our target for 2021 is the reduction of GHG emissions (Scope 1+2) from facilities by 22%, compared to 2019 level. During 2021 Q1 we announced our recalibrated science-based targets with which we state that we will halve our emissions from all scopes by 2030. Our new targets include our own operations, our assembly factories, logistics and close to 100% of our current product portfolio. We encourage our key suppliers to report their climate impacts and set carbon reduction targets through the CDP Supply Chain Program, which helps us to plan improvement programs with our suppliers and improve reporting of our Scope 3 emissions. We also run training workshops including topics like climate change for our suppliers. These on-going activities reduce our energy related cost and risk. Annual cost impact of risk management is less than EUR 1 million. The magnitude of impact has been estimated based on related labor costs of approximately 10 FTE (Full time equivalents), including also indirect cost. Often the benefits outweigh the costs of management (e.g. reduction in energy use and air travel) and the actions are part of overall business conduct. Therefore no overall meaningful additional negative financial impact is observed.

## Comment

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### Identifier

Risk 3

### Where in the value chain does the risk driver occur?

Direct operations

### Risk type & Primary climate-related risk driver

Market	Other, please specify (Increasing social unrest, war, or other political or economic risks as a result of climate change)
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### Primary potential financial impact



<Not Applicable>

### **Company-specific description**

An example of a market risk that we consider is the possible increase of e.g. social unrest, war, or other political or economic risks as a result of climate change. This could have a negative impact on the economy and customer purchasing power, and in some cases lead to inability to continue business in certain areas. It could also have an impact on the telecommunications infrastructure market, but our assumption is that this is a long-term development and that the adverse impact on our industry or Nokia would not be disproportionately higher than on other industries or our competitors. We also believe that certain opportunities may make our business less vulnerable and possibly mitigate the negative impacts. It is being investigated if, and to what extent, climate change increases the likelihood for the spreading of new diseases and pandemics (see for example, Harvard School of Public health: <https://www.hsph.harvard.edu/c-change/subtopics/coronavirus-and-climate-change>). During 2020, we commented on the effects of the COVID-19 pandemic in the following quarterly releases: Our Q1 2020 financial report stated: We expect the majority of this COVID-19 impact to be in Q2 and believe that our industry is fairly resilient to the crisis, although not immune. We did not see a decline in demand in the first quarter. As the COVID-19 situation develops, however, an increase in supply and delivery challenges in a number of countries is possible and some customers may reassess their spending plans. In Q1 2020, we estimated that COVID-19 had an approximately EUR 200 million negative net impact on our net sales; with the majority of these net sales expected to be shifted to future periods, rather than being lost. In Q1 2020, the impact was largely the result of supply issues associated with disruptions in China. In Q2 2020, we estimated that COVID-19 had an approximately EUR 300 million negative net impact on our net sales; with the majority of these net sales expected to be shifted to future periods, rather than being lost. In Q2 2020, the impact was primarily related to delivery and implementation challenges. In Q1 2021, we updated our risk factor specifically related to COVID-19 to mention the risks and uncertainties related to "the scope and duration of the COVID-19 impact, particularly in certain countries, including India, where the pandemic has worsened, and the pace and shape of the economic recovery following the pandemic."

### **Time horizon**

Long-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Medium

### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

218500000

### **Potential financial impact figure – minimum (currency)**



<Not Applicable>

### **Explanation of financial impact figure**

For example a 1% reduction in the demand of Nokia products would lead to about EUR 218.5 million reduction in our annual sales based on 2020 data (total sales were EUR 21 852 million in 2020). Thus explanation of financial impact figure is  $0.01 \times 21\,852 = \sim 218.5$  million. Our assumption is that adverse impact from such events on our industry or Nokia would not be disproportionately higher than on other industries or our competitors at least to significant extent. This calculation is provided purely as a sensitivity and should not be interpreted to imply accuracy on the financial impact of the risk described.

### **Cost of response to risk**

1000000

### **Description of response and explanation of cost calculation**

Managing long term political risks is challenging, especially globally. However, the case example below describes activities that make our products more attractive and cost efficient for the customer and thus may help alleviate the risk of fluctuating socioeconomic conditions caused e.g. by social unrest and other political or economic risks. Product energy efficiency features may help alleviate impacts on customers purchasing power and preferences, as energy costs represent a significant part of the network operators' operating costs. Our AirScale radio base station products have up to 69 percent lower energy consumption than our previous generation radio access solution. They also provide more powerful energy saving software features leading to higher savings even in medium-to-busy traffic conditions. Over 150 customers have installed energy efficiency software features on our products. Over 20 percent of our radio products in the field have one or more energy efficiency software features activated. Our Single RAN (SRAN) software solution typically enables 45 percent lower energy consumption compared to the traditional way of having separate 2G, 3G and 4G radio networks. Separate networks require dedicated hardware, software and services and therefore a greater environmental footprint. In 2020 we demonstrated support for 5G in our SRAN solution with commercial availability in 2021. Our total R&D spend was EUR 4087 million in 2020 and a part of this goes to activities such as developing our AirScale Radio portfolio, new energy efficient fiber access solutions and chipset innovations. Providing these solutions can mitigate risks to some extent. These costs are incurred as part of normal product development process and no major extra cost is incurred because of the climate change related actions. Estimated annual cost impact of the response to risk is less than EUR 1 million , referring to related labor costs of approximately 10 FTE (Full Time Equivalents).

### **Comment**

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## **C2.4**

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**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**



## C2.4a

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

Our AirScale radio base station products have up to 69 percent lower energy consumption than our previous generation radio access solution. They also provide more powerful energy saving software features leading to higher savings even in medium-to-busy traffic conditions. Over 150 customers have installed energy efficiency software features on our products. Over 20 percent of our radio products in the field have one or more energy efficiency software features activated. Our Single RAN (SRAN) software solution typically enables 45 percent lower energy consumption compared to the traditional way of having separate 2G, 3G and 4G radio networks. Separate networks require dedicated hardware, software and services and therefore a greater environmental footprint. In 2020 we demonstrated support for 5G in our SRAN solution with commercial availability in 2021. Our products also improve connectivity and reduce the need for unnecessary travel and commuting e.g. by enabling virtual meetings and remote work.

**Time horizon**

Long-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

218500000



## Potential financial impact figure – maximum (currency)

<Not Applicable>

### Explanation of financial impact figure

It is very difficult to estimate the impact as it relates to long-term development with various uncertainties. Based on our 2020 business volumes, for example a 1% growth in demand would lead to approximately EUR 218,5 million increase in our annual net sales (total sales were EUR 21 852 million in 2020), so explanation of financial impact figure is  $0.01 \times 21852 = 218,5$  million. Possible increases on energy prices due to taxes and regulations could however have a negative impact on the world economy and at least partly offset the possibly increased demand for products and services. This calculation is provided purely as a sensitivity and should not be interpreted to imply accuracy on the financial impact of the opportunity described.

### Cost to realize opportunity

1000000

### Strategy to realize opportunity and explanation of cost calculation

Our main strategy to realize the opportunity is to develop energy efficient products. It is also visible in our target setting; we were the first telecommunications equipment vendor and one of the first 100 companies globally to get approval for science-based targets (SBTs) to reduce GHG emissions. By 2030 we aim to reduce GHG emissions from sold products by 75% compared to 2014. In 2019, we committed to recalibrate our existing targets to be in line with the 1.5°C warming scenario. During 2021 Q1 we announced our recalibrated targets with which we state that we will halve our emissions from all scopes. Our new targets include our own operations, our assembly factories, logistics and close to 100% of our current product portfolio. Our AirScale radio base station products have up to 69 percent lower energy consumption than our previous generation radio access solution. They also provide more powerful energy saving software features leading to higher savings even in medium-to-busy traffic conditions. Over 150 customers have installed energy efficiency software features on our products. Over 20 percent of our radio products in the field have one or more energy efficiency software features activated. Our Single RAN (SRAN) software solution typically enables 45 percent lower energy consumption compared to the traditional way of having separate 2G, 3G and 4G radio networks. Separate networks require dedicated hardware, software and services and therefore a greater environmental footprint. In 2020 we demonstrated support for 5G in our SRAN solution with commercial availability in 2021. Our R&D spend was EUR 4087 million in 2020. Part of this goes to activities such as developing our AirScale Radio portfolio, new energy efficient fiber access solutions and chipset innovations. These costs are incurred as part of normal product development process and no major extra cost is incurred because of climate change related actions. Estimated annual cost to realize the opportunity is less than EUR 1 million, referring to related labor costs of approximately 10 FTE (Full Time Equivalent).

### Comment

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#### Identifier

Opp2

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development of new products or services through R&D and innovation

**Primary potential financial impact**

Increased revenues through access to new and emerging markets

**Company-specific description**

Nokia is well positioned to play a key role in the connected world that can help people in various ways also in addressing climate change related challenges. Examples of possible opportunity areas are better use of scarce resources through precision agriculture and improved water management and mitigating risks of flood or drought. Reliable communications infrastructure is also essential in various catastrophic situations (e.g. destruction by typhoons or hurricanes). The radio networks we have delivered to our customers serve over 6.6 billion subscriptions globally as we work towards our goal of connecting the next billion.

**Time horizon**

Long-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

218500000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

It is very difficult to estimate the increased revenues through access to new and emerging markets, as the impact relates to long-term development with various uncertainties. Based on our 2020 business volumes, for example a 1% growth in demand would lead to approximately EUR 218,5 million increase in our annual net sales (total sales were EUR 21 852 million in 2019).  $0.01 * 21852 = \sim 218,5$  million This calculation is provided purely as a sensitivity and should not be interpreted to imply accuracy on the financial impact of the opportunity described.

**Cost to realize opportunity**

1000000



opportunity areas include better use of scarce resources through precision agriculture and improved water management and mitigating risks of flood or drought. Reliable communications infrastructure is also essential in various catastrophic situations (e.g. destruction by typhoons or hurricanes). The following case example describes activities/products to realize the opportunity. Our Ultra Compact Network is a rapidly deployable 4G solution which enables vital public safety communications to be implemented at emergency scenes where wide area network coverage is not available. Our R&D spend was EUR 4087 million in 2020 and a part of this goes to activities like developing our AirScale Radio portfolio, new energy efficient fiber access solutions and chipset innovations. These costs are incurred as part of normal product development process and no major extra cost is incurred because of the climate change related actions. Estimated annual cost to realize the opportunity is less than EUR 1 million, referring to related labor costs of approximately 10 FTE (Full Time Equivalents).

### Comment

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#### Identifier

Opp3

#### Where in the value chain does the opportunity occur?

Direct operations

#### Opportunity type

Resource efficiency

#### Primary climate-related opportunity driver

Move to more efficient buildings

#### Primary potential financial impact

Reduced indirect (operating) costs

#### Company-specific description

Increasing the energy efficiency of buildings can bring reductions in facility energy costs. Energy saving measures are done primarily for business reasons like cost savings, and only secondarily because of the identified climate related risks and opportunities. We have a global Environmental Management System (EMS) through which we analyze our most significant environmental aspects annually. We take into account current and potential future regulatory and other related requirements, stakeholder interest, the size of the environmental impact, related risks and opportunities, and current and potential changes in our business. Our own operations are certified under the ISO 14001:2015 EMS standard. In 2020 the coverage of employees within the scope of that certification was 90%. In 2021 we published the new targets in line with 1,5 C global warming scenario and with those we are going to halve our emissions between 2019-2030. Energy efficiency related actions in our offices and factories to achieve these targets are on-going. In 2020, our Real Estate team maintained its focus on developing and delivering energy efficient facilities in-line with our overall company goals and SBTs. In 2020, purchased electricity consumption across our facilities decreased by 7%. 39% of total purchased electricity was associated with renewable sources, as compared to 31% in 2019. These actions re-



consumption and emissions, and our GHG emissions from facilities decreased by 19% compared to 2019. Our target for 2021 is the reduction of GHG emission by 22% from facilities, compared to 2019 level (Scopes 1+2). A capital investment program of energy efficiency works was undertaken across some of our largest sites including Espoo, Paris, Antwerp, Murray Hill and Bangalore. Projects included chiller replacement, heating system upgrades, uninterrupted power supply (UPS) replacement, heat loss measures and improved efficiency controls. The inclusion of energy efficient equipment in maintenance replacement schedules and refurbishment projects continued across our portfolio, with projects implemented in all areas including heating, ventilation and air conditioning (HVAC) controls, all aimed at reducing our energy use.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

29400000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Our energy costs were approximately EUR 98.1 million in 2020. Assuming the energy efficiency increase of 30%, our energy costs would be reduced annually by approximately EUR 29.4 million based on 2020 data ( $0.3 \times 98.1 = 29.4$  million) This calculation is provided purely as a sensitivity and should not be interpreted to imply accuracy on the financial impact of the opportunity described.

**Cost to realize opportunity**

1000000

**Strategy to realize opportunity and explanation of cost calculation**

We were the first telecommunications equipment vendor to get the approval for our commitment to 2030 Science Based Targets (SBT) to reduce our long term scope 1, 2 and 3 emissions in 2017. In 2021 we published the new targets in line with 1.5 celsius global warming scenario and with those we are going to halve our emissions between 2019-2030. Energy efficiency related actions in our offices and factories - to achieve these targets - are on-going. Following case study examples describe activities with which we aim to realize the opportunity of energy efficiency related decreases in indirect operating



impacted carbon emissions throughout the year. However, even though more employees were working remotely, energy usage associated with building infrastructure requirements and ongoing laboratory equipment operation still occurred. In 2020, purchased electricity consumption across our facilities decreased by 7 percent. 39% of total purchased electricity was associated with renewable sources, as compared to 31 percent in 2019. These actions reduced our Scope 2 emissions by over 19 percent from 2019 levels. All real estate markets made considerable contributions to the overall energy saving of 76 000 MWh, representing a 7 percent reduction from our 2019 energy consumption | A capital investment program of energy efficiency works was undertaken across some of our largest sites including Espoo, Paris, Antwerp, Murray Hill and Bangalore. Projects included chiller replacement, heating system upgrades, uninterrupted power supply (UPS) replacement, heat loss measures and improved efficiency controls. The inclusion of energy efficient equipment in maintenance replacement schedules and refurbishment projects continued across our portfolio, with projects implemented in all areas including heating, ventilation and air conditioning (HVAC) controls, all aimed at reducing our energy use. Annual cost impact related to realizing the opportunity is less than EUR 1 million. The cost impact (referring to related labor costs), and typically the benefits weight out the costs with a net positive financial impact. The impact has been estimated based on related labor costs of approximately 10 FTE (Full time equivalents).

### Comment

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## C3. Business Strategy

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### C3.1

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#### (C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes, and we have developed a low-carbon transition plan

### C3.1a

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#### (C3.1a) Is your organization's low-carbon transition plan a scheduled resolution item at Annual General Meetings (AGMs)?

Is your low-carbon transition plan a scheduled resolution item at AGMs?	Comment
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	Item at AGMs?
Row 1	No, and we do not intend it to become a scheduled resolution item within the next two years  The Board of Directors annually prepares proposals to the Annual General Meeting. Matters falling into the powers of the Annual General Meeting and to be considered at AGMs are regulated under the Finnish Limited Liability Companies Act and the Company's Articles of Association.

## C3.2

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### (C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, qualitative and quantitative

## C3.2a

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### (C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details



and models applied	
2DS Other, please specify (We have used IPCC RCP 2.6 scenarios of 1.5°C and 2.0°C to review our risks, opportunities and related implications to our business. In addition, we have used various scenarios and case studies related to energy price increases (e.g. 10 % and 30%). )	<p>We have selected the below scenarios that we identified through the Paris Agreement, TCFD-recommendations and through our own insights:</p> <ul style="list-style-type: none"> <li>- IPCC 1.5/ 2.0°C scenarios to review our risks, opportunities and related implications to our business</li> <li>- IEA's 2DS and B2DS scenarios were part of our SBT setting</li> <li>- Various scenarios and case studies on energy price increase (e.g. 10% and 30%), and the possible financial impact from tropical cyclones that could severely impact Nokia or its value chain</li> <li>- Inputs, assumptions and analytical methods: <ul style="list-style-type: none"> <li>- Nokia climate, energy and business performance data, related projections and sensitivity analysis; data from our risk, opportunity and strategy analysis;</li> <li>- IPCC and IEA climate scenarios</li> <li>- IEA scenarios on energy mix development until 2030</li> <li>- IEA ETP 2DS assumptions on GDP development, abatement cost, population growth etc.</li> </ul> </li> <li>- Carbon price/tax: Sensitivity analysis based on current cost vs. 30% increase</li> <li>- Increased severity of extreme weather events</li> <li>- Climate change impact on fluctuating socioeconomic conditions and related political and economic risks</li> <li>- Energy efficiency improvements &amp; possible changes in technology, volumes</li> <li>- Quantitative and qualitative analysis</li> <li>- Most relevant physical and transition risks</li> </ul> <p>- We have considered the whole value chain, especially the most material areas: our own operations (where we have highest operational control), supply chain and product use (where impact is highest).</p> <p>- We have used various time horizons in our analysis: 2030 related scenario relevant as a basis for setting our emission reduction targets (aligned with the 1.5°C scenario), and also aligned with the UN SDGs. Time frame of 3-10 years (in some cases longer) aligned with our long-term time-horizon for risk &amp; opportunity management and strategy planning</p> <p>The most impactful results of the analysis for us:</p> <ol style="list-style-type: none"> <li>1) In IPCC 1.5°C and 2°C scenarios: The need for bigger and more urgent GHG emission reduction activities</li> <li>Higher risk of extreme weather conditions, which might impact especially Nokia employees in Asia-Pacific or manufacturing suppliers in East and South East Asia</li> <li>Risks to health, livelihoods, food security, water supply, cities and economic growth (&amp;poverty) are projected to increase (1.5°C vs 2°C scenarios)</li> <li>IEA Scenario was used as a basis of our SBT target setting</li> <li>Additional energy cost scenario: 30% increase in energy costs would lead to over €20 million decrease in our profit, therefore this risk is included in our ERM risk register</li> <li>IPCC and IEA scenarios predict how the utility sector will de-carbonize its electricity production. This has a direct impact on our scope 2 and 3 emissions for purchased electricity, for our own operations and purchased electricity for customers using our products. There are also opportunities related to climate change as technology can help reduce emissions and increase resilience to the negative consequences of climate change; e.g. reliable communications infrastructure is essential in catastrophic situations.</li> <li>Also, increase in energy cost would shorten the payback period for our facility energy efficiency investments.</li> <li>The scenarios and analysis have not directly changed Nokia's business strategy as climate change mitigation and adaptation have been a part of our business planning and activities already earlier. However, below case study examples describe how the results of the analysis have influenced our business objectives:</li> <li>The analysis has provided information for our risk and opportunity analysis; stressed the need for more extensive and urgent GHG reduction activities and acted as the basis of our SBT.</li> <li>Global warming of 1.5/2°C would to some extent increase the likelihood and impact of extreme weather conditions. However, the differences between the two scenarios would not significantly change the results of our risk assessment/financials and related mitigation plans such as business continuity, insurance etc.</li> </ol>

### C3.3

**(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.**



and opportunities influenced your strategy in this area?		
Products and services	Yes	Demand from customers for products and services that generate lower emissions is identified as an opportunity with medium- and long-term impact. For mobile service providers most of their carbon emissions come from the radio access network. A case study example of one of the most substantial strategic decisions made in this area that have been influenced by the climate-related risks and opportunities is the development of energy efficient product such as our AirScale radio products and setting SBTs to halve the emissions from scope 3 between 2019-2030. This target covers close to 100% of our product portfolio. Our AirScale radio base station solution (BTS) spearheads our commitment to helping our customers build a sustainable business supported by a zero emissions network. Innovative hardware and intelligent software cut base station energy consumption. Over 150 customers have installed energy efficiency software features to our products. Over 20% (16% in 2019) of our radio products in the field had one or more energy efficiency software features activated.
Supply chain and/or value chain	Yes	Increase in energy cost has been identified as a potential risk with medium- and long-term impact, and that's why Nokia has requested some 500 of our suppliers to disclose their climate performance and targets through the CDP supply chain module. This engagement with our suppliers on climate change is a case study example of one of the most substantial strategic decisions made in this area that have been influenced by the climate-related risks and opportunities. It has impacted both Nokia and suppliers' cost and workload.
Investment in R&D	Yes	Energy efficiency of products has been identified as an important topic and an opportunity with medium- and long-term impact. Our Design for Environment (DfE) R&D process addresses energy efficiency of all our products. A case study example of the most substantial strategic decisions made in this area that have been influenced by the climate-related risks and opportunities include the development of new more energy efficient hardware and software, such as our ReefShark chipset.
Operations	Yes	Energy savings in our operations has been identified as an opportunity with short-, medium- and long-term impact. A case study example of the most substantial strategic decisions made in this area that have been influenced by the climate-related risks and opportunities include setting our Science Based Target to reduce scope 1 and 2 GHG emissions by 50% by 2030 (base year 2019). We have plans in place to achieve the target, and as an example of our achievements in 2020, our electricity consumption across our facilities has decreased by 7% in 2020 as compared to 2019.

## C3.4

### (C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

Financial planning elements that have been influenced	Description of influence



		What have been influenced
Row 1	Revenues Indirect costs	Climate-related issues are only one of the many factors impacting our product competitiveness and its impact on revenue is difficult to quantify to the extent it would have a clear impact in the financial planning process. A case study example of how climate-related risks and opportunities have influenced our financial planning include e.g. significant new product introductions and related investments such as ReefShark chipset and AirScale radio products. Significant new product introductions are taken into consideration in the planning process in case they have significant impact on the sales margin development. However, it is impossible to factor the climate change related product revenue risks and opportunities in the financial planning. Time horizon covered by the financial planning is our long range plan, i.e. covering the current year and 3 consecutive years. Energy saving measures have some impact on operating costs and cost savings - for example in our facilities we speak about some millions of EUR annual impact (less than 30 MEUR). These activities are done primarily for business reasons like savings in energy costs, and only secondarily because of the identified climate related risks and opportunities. Time horizon covered is the annual financial planning (short-term).

## C3.4a

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(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

## C4. Targets and performance

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### C4.1

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(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

### C4.1a

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(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

**Target reference number**

Abs 1

**Year target was set**

2017

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based)

**Base year**

2014

**Covered emissions in base year (metric tons CO2e)**

710000

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

98

**Target year**

2030

**Targeted reduction from base year (%)**

41

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

418900

**Covered emissions in reporting year (metric tons CO2e)**

368800

**% of target achieved [auto-calculated]**

117.21058055651

**Target status in reporting year**

Achieved

**Is this a science-based target?**

Yes, and this target has been approved by the Science-Based Targets initiative

**Target ambition**

Well-below 2°C aligned

**Please explain (including target coverage)**

We updated our SBT target to follow 1.5°C aligned ambition at the end of 2020. We will track and report progress against our updated targets from 2021 data onward. Nokia submitted this target in April 2017 to the Science-Based Targets Initiative (SBTi), and SBTi approved the target in June 2017. We are on track with the target and this progress is externally assured as part of our sustainability assurance. The assurance report is available in our People & Planet 2020 report. In our Science Based Target (SBT), we wanted to include also car fleet emissions, but reporting for the car fleet emissions started only in 2015. Hence car fleet emissions from 2015 (44 900 tonnes) were used as a proxy for 2014 car fleet emissions to calculate the total Scope 1 emissions for the base year 2014. This explains why the total Scope 1 emissions reported for 2014 in our People & Planet report are 44 900 tonnes smaller than the base year 2014 emissions included in our SBT. We report 100% of emissions in our annual sustainability report People & Planet, but our SBT target coverage is 98% as it excludes following minor facility related emission sources:

**Target reference number**

Abs 2

**Year target was set**

2017

**Target coverage**

Product-level

**Scope(s) (or Scope 3 category)**

Scope 3: Use of sold products

**Base year**

2014

**Covered emissions in base year (metric tons CO2e)**

33060000

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

80

**Target year**

2030

**Targeted reduction from base year (%)**

75

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

8265000

**Covered emissions in reporting year (metric tons CO2e)**

23638000

**% of target achieved [auto-calculated]**

37.9995966928816

**Target status in reporting year**

Underway

**Is this a science-based target?**

Yes, and this target has been approved by the Science-Based Targets initiative

**Target ambition**

2°C aligned

**Please explain (including target coverage)**

We updated our SBT target to follow 1.5°C aligned ambition at the end of 2020. We will track and report progress against our updated targets from 2021 data onward. Scope 3 emissions included in our SBT are on track and are assured by a third-party. We have set a Science Based Target (SBT) for 2030 (base year 2014) to reduce by 75% our Scope 3



relatively stable during the first years but eventually decrease over time. Energy consumption and related GHG emissions from the products that we sold in 2020 were on track, and more specifically below the maximum allowed emissions in order to stay on track for 2020. This is due to significant energy efficiency improvements in our new products but also due to lower sales volumes of the products that are in the scope of our SBT Scope 3 target. Compared to the previous product generation, the energy efficiency improvements in our new product families result in much higher capacity for a small increase in energy consumption. The energy efficiency has increased by adding new power saving features.

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## C4.2

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### (C4.2) Did you have any other climate-related targets that were active in the reporting year?

Target(s) to increase low-carbon energy consumption or production

Other climate-related target(s)

## C4.2a

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### (C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

#### Target reference number

Low 1

#### Year target was set

2019

#### Target coverage

Company-wide

#### Target type: absolute or intensity

Absolute

#### Target type: energy carrier

Electricity

#### Target type: activity

Consumption

#### Target type: energy source

Renewable energy source(s) only

#### Metric (target numerator if reporting an intensity target)



<Not Applicable>

**Base year**

2019

**Figure or percentage in base year**

30

**Target year**

2020

**Figure or percentage in target year**

35

**Figure or percentage in reporting year**

39

**% of target achieved [auto-calculated]**

180

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

In 2020, 39% of our total purchased electricity was from renewable sources and we achieved our 2020 target. Target for the share of renewable electricity is set for one year at a time and the result is externally assured.

**Is this target part of an overarching initiative?**

Science-based targets initiative

**Please explain (including target coverage)**

Increasing the share of renewable electricity in the total purchased electricity supports us in achieving our Science-based target for Scope 1 and 2. Our new target for 2021 is to achieve at least 45% utilisation of renewable electricity compared to total purchased electricity.

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## C4.2b

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**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

**Target reference number**

Oth 1

**Year target was set**

2019

**Target type: absolute or intensity**

Absolute

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency	Other, please specify (GWh)
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**Target denominator (intensity targets only)**

<Not Applicable>

**Base year**

2019

**Figure or percentage in base year**

1135

**Target year**

2020

**Figure or percentage in target year**

1101

**Figure or percentage in reporting year**

1059

**% of target achieved [auto-calculated]**

223.529411764706

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

Reducing total facility energy usage is one way for achieving science-based scope 1 and 2 target.

**Is this target part of an overarching initiative?**

Science Based Targets initiative

**Please explain (including target coverage)**

The total energy consumption across our facilities decreased by 7% (from 1135 GWh to 1059 GWh) compared to 2019. Our target for 2020 was to achieve a 3% reduction within one year so the target was well achieved. The result is externally assured.

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## C4.3

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**(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes



## C4.3a

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**(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO<sub>2</sub>e savings.**

	Number of initiatives	Total estimated annual CO <sub>2</sub> e savings in metric tonnes CO <sub>2</sub> e (only for rows marked *)
Under investigation	30	10015
To be implemented*	25	182250
Implementation commenced*	16	4796
Implemented*	13	172383
Not to be implemented	6	1849

## C4.3b

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**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

**Initiative category & Initiative type**

Low-carbon energy consumption	Hydropower
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**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

169451.32

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

99903

**Payback period**

<1 year

**Estimated lifetime of the initiative**

1-2 years

**Comment**

6 initiatives: EAC purchases in United States, China, Finland, Canada, France, Poland

**Estimated annual CO2e savings (metric tonnes CO2e)**

2861.14

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

895984

**Investment required (unit currency – as specified in C0.4)**

3953875

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

6 initiatives

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**Initiative category & Initiative type**

Energy efficiency in buildings	Lighting
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**Estimated annual CO2e savings (metric tonnes CO2e)**

71

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

11700

**Investment required (unit currency – as specified in C0.4)**

35100

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

1 initiative



## C4.3C

### (C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for other emissions reduction activities	We have renewable energy purchase contracts for 1-3 years at a time.
Internal incentives/recognition programs	While we have always believed that ESG is core to how we run our business and our role in society, 2020 demonstrated clearly the importance of our role in society and the personnel committee decided that it would now be appropriate to formalize this as part of our incentive structure. For 2021, the short-term incentive structure of Nokia Group Leadership Team (GLT) will focus on three key metrics, one of them being ESG to deliver on our responsibilities to reduce carbon emissions and become a more diverse employer.
Other	Our facilities have sustainability requirements that set out what is required during construction projects and major renovations. The requirements include e.g. specific targets, increased energy sub-metering and energy efficient equipment.

## C4.5

### (C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

## C4.5a

### (C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

#### Level of aggregation

Group of products

#### Description of product/Group of products

Our technology provides telco customers energy efficient products and more efficient use of materials improving their environmental footprint, but we provide solutions that enable the customers to offer digital services to their customers that replace or improve upon existing processes or services driving reductions in emissions across industries, cities and the consumer markets. Moreover, solutions we provide directly to enterprises decrease their negative impact by providing greater automation and digitalization of industrial and societal processes thus reducing waste and resource consumption. A GSMA 2019 report suggested the use of mobile technology can enable around ten times greater GHG emission reductions than the carbon footprint of the mobile industry itself. 5G tech-



design factor for our products in R&D investments. We continue to develop our Nokia Zero Emission network offering and in 2020, we delivered zero emission products to over 150 customers worldwide. The networks we modernized used on average 54% less energy than those where customers did not modernize with a typical payback time for base station modernization of 2 to 3 years. With enhanced energy efficiency improvements, our AirScale radio base station products have up to 69 percent lower energy consumption than our previous generation radio. In June 2020 we delivered the world's first 5G liquid-cooled base station to Elisa's live network. This enables reduction in emissions by approximately 80 percent. It replaces traditional air cooling and can reduce energy consumption of a typical radio site by up to 50% in comparison. We also launched solutions such as the AVA Energy efficiency services which is proven to reduce energy consumption by up to 20% (dependent on configuration, equipment, usage patterns and energy prices) allowing customers to harness Artificial Intelligence to establish more sustainable patterns of energy. Read more: Combating climate change | Nokia, <https://www.nokia.com/about-us/sustainability/climate/#our-footprint-products-and-operations>

**Are these low-carbon product(s) or do they enable avoided emissions?**

Low-carbon product and avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (ICT's potential to enable other industries avoid emissions )

**% revenue from low carbon product(s) in the reporting year****% of total portfolio value**

<Not Applicable>

**Asset classes/ product types**

<Not Applicable>

**Comment**

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## C5. Emissions methodology

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### C5.1

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**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).****Scope 1****Base year start**



December 31 2014

**Base year emissions (metric tons CO2e)**

124374

**Comment**

**Scope 2 (location-based)**

**Base year start**

January 1 2014

**Base year end**

December 31 2014

**Base year emissions (metric tons CO2e)**

599817

**Comment**

**Scope 2 (market-based)**

**Base year start**

January 1 2014

**Base year end**

December 31 2014

**Base year emissions (metric tons CO2e)**

554560

**Comment**

18% green electricity employed

## C5.2

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**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

The Greenhouse Gas Protocol: Scope 2 Guidance

## C6. Emissions data

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**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?**

**Reporting year**

**Gross global Scope 1 emissions (metric tons CO2e)**

116268

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

---

## C6.2

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

---

## C6.3

**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?**

**Reporting year**

**Scope 2, location-based**

380223

**Scope 2, market-based (if applicable)**

263604

**Start date**

<Not Applicable>

**End date**

<Not Applicable>



## C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

## C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

### Purchased goods and services

#### Evaluation status

Relevant, calculated

#### Metric tonnes CO<sub>2</sub>e

2487440

#### Emissions calculation methodology

Emissions are reported based on data collected with CDP Climate Survey from Nokia's biggest suppliers, and directly from our final assembly suppliers, representing 46% of total purchase spend in 2020 (55% in 2019). We use a hybrid method, using emissions allocated for Nokia by the suppliers and also intensity based (GHG/€) allocation, where allocated emissions were not available, or allocation was not reliable based on different internal quality measures. Collected data is then multiplied to cover 100% of spend. In 2020 calculation we included only suppliers' Scope 1+2 emissions, not Scope 3 emissions, which were reported only by a small share of respondents. Suppliers providing transportation services for products are excluded as "emissions from transportation and distribution" are reported in a separate Scope 3 category. 2020 disclosure is based on the latest CDP data representing suppliers' year 2019 emissions. We recognise that this emission category includes a lot of uncertainty, as suppliers have different qualities in their own reporting and in allocating emissions to Nokia, and due to the extrapolation Nokia does for data to represent 100% of Nokia spend.

#### Percentage of emissions calculated using data obtained from suppliers or value chain partners

7

#### Please explain

The suppliers who responded to CDP (430 suppliers) represented 61% of Nokia's supplier spend. Emission allocation or intensity data was available for 213 suppliers representing 45% of the spend and used in the calculation of Nokia's Scope 3 emissions for Purchased goods and services. Calculations cover 100% of Nokia's supplier spend.



Relevant, calculated

**Metric tonnes CO2e**

380262

**Emissions calculation methodology**

The relevance of emissions from this category to be included in the Scope 3 inventory is assessed each year, as capital goods purchases vary from year to year. The threshold for inclusion is 0.5% of total Scope 1+2+3 emissions. Emissions from capital goods are based on financial data on property, plant, and equipment additions during the reporting year and estimated by using the GHG Protocol Scope 3 Evaluator tool.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

Capital goods emission are calculated based on Nokia's financial numbers by GHG Protocol Scope 3 Evaluator tool.

**Fuel-and-energy-related activities (not included in Scope 1 or 2)****Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Fuel-and-energy-related activities are not considered relevant because, emissions from such activities represent less than 0.1% of our total Scope 3 emissions.

**Upstream transportation and distribution****Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

255208

**Emissions calculation methodology**

Data includes emissions from inbound and outbound logistics. Data is based on the top 18 (19 in 2019) logistics supply partners (LSP) delivery data (ton-km) and transportation

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

**Please explain**

Upstream transportation and distribution CO<sub>2</sub>e emissions reporting covers all transportation paid by Nokia.

**Waste generated in operations****Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO<sub>2</sub>e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Emissions from waste generated in operations are not considered relevant since, according to our calculations, such emissions represent less than 0.1% of our total Scope 3 emissions.

**Business travel****Evaluation status**

Relevant, calculated

**Metric tonnes CO<sub>2</sub>e**

13398

**Emissions calculation methodology**

Business travel covers emissions from business air travel which have the biggest impact out of all business travel modes. Travel information is obtained from our assigned Travel Agencies. Supplied data includes distance travelled, delineated by flight distance ranges and cabin class. Data from travel agencies is consolidated in a system which is used to calculate emissions from air travel. Emission factors are obtained from EPA.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

**Please explain****Employee commuting****Evaluation status**



39228

**Emissions calculation methodology**

We conducted an employee commuting survey in 2018. Survey results are a representative sample from several countries. Those results are extrapolated to represent commuting of all employees for 2018–2020 emissions. For 2020, share of commuting methods was adjusted based on allowed occupancy at Nokia sites during global COVID-19 lockdowns.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain****Upstream leased assets****Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO<sub>2</sub>e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Upstream leased assets are not considered relevant as leased vehicles and facilities are presently assessed in Scope 1 emissions.

**Downstream transportation and distribution****Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO<sub>2</sub>e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Emissions from downstream transportation and distribution are not considered relevant as the share of transportation and distribution paid by the customers is so small that



### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Not considered relevant because processing is not required for sold Nokia products.

## Use of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

32419557

### Emissions calculation methodology

The calculation formula is following:  $\Sigma$  [total lifetime expected uses of products (hours) x number of products sold in reporting period x product power consumption (kW) x emission factor for electricity (kg CO2e/kWh)]. Data covers products from Nokia's Network business groups. Product use time varies between 6 and 15 years, depending on the products. Energy use calculations are based on product group specific standards, e.g. by ETSI, wherever standards have been published. The objective is to have a product coverage above 80%; in 2020 we are above 90%. Calculations are so far based on assumption that all products are powered by grid electricity. Since 2018, we have been using the IEA's latest world average CO2 equivalent emission factor.

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

Use of sold products CO2e emission calculation covers use time electricity consumption at customer sites. Data is based on Nokia's calculations.

## End of life treatment of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Not considered relevant. Based on our Life Cycle Analysis (LCA) conducted for a typical Nokia mobile network product (urban base station site in Europe), the use-phase accounts for over 84% of global warming potential, production (supply chain and own operations) for 14%, logistics for 2% and end-of-life treatment rounds to 0%. End-of-life treatment emissions are not significant either in other Nokia product categories.

**Downstream leased assets****Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO<sub>2</sub>e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Emissions from downstream leased assets are not considered relevant because they represent less than 0.1% of our total Scope 3 emissions.

**Franchises****Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO<sub>2</sub>e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Nokia does not have franchises

**Investments****Evaluation status**

Not relevant, explanation provided

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

Nokia has invested in some companies but has no operational control. In line with our approach with financial accounting these are not consolidated in our environmental reporting as well.

**Other (upstream)****Evaluation status****Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain****Other (downstream)****Evaluation status****Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

## C6.7

**(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

No



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**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO<sub>2</sub>e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

**Intensity figure**

0.000017384

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**

379873

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

21852000000

**Scope 2 figure used**

Market-based

**% change from previous year**

10

**Direction of change**

Decreased

**Reason for change**

The change is due to emission reduction activities, including increased purchases for renewable energy and reduction in the amount of total purchased electricity. 2019:

0.000019397 tCO<sub>2</sub>e/euro 2020: 0.000017384 tCO<sub>2</sub>e/euro

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## C7. Emissions breakdowns

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### C7.1

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**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

#### C7.1a

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Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	115627.876	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	8.875	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	11.791	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	619.917	IPCC Fourth Assessment Report (AR4 - 100 year)

## C7.2

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**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO2e)
Asia Pacific (or JAPA)	52.78
Europe	4725.29
India	312.69
China	192.91
Latin America (LATAM)	98.65
Africa and Middle East	55.39
North America	14654.81
Other, please specify (Worldwide) <i>Includes company lease fleet and marine vessels</i>	96175.93

## C7.3

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**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By activity

## C7.3c

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**(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

Activity	Scope 1 emissions (metric tons CO2e)
Emissions from combustion of gasoline in facility-associated mobile vehicles	48.15
Emissions from combustion of diesel in facility-associated mobile vehicles	23.24



vehicles	
Emissions from combustion of natural gas in facility operations	17220.5
Emissions from combustion of diesel and fuel oil in facility operations	234.89
Emissions from combustion of LPG in facility operations	357.87
Emissions from fuel cell employing natural gas to generate electricity	1584.8
Emissions from refrigerant leaks	619.92
Emissions from fire-fighting activities	3.09
Emissions from combustion of fuel in marine fleet	75145.15
Emissions from fuel combustion in car fleet	21030.78

## C7.5

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(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Asia Pacific (or JAPA)	15145.37	15145.37	28160.46	0
Europe	107890.58	71940.97	404431.07	186041
Latin America (LATAM)	974.1	974.1	6133.82	0
Africa and Middle East	4358.13	4358.13	6748.72	0
China	79270.17	50429.09	128582.24	46072
North America	102675.05	50846.53	285879.32	119116.23
India	69909.89	69909.89	96707.55	0

## C7.6

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(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By activity

## C7.6c



Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Emissions from purchased electricity	362498.31	245879.1
Emissions from purchased chilled water	7120.27	7120.27
Emissions from delivered cooling	3826.29	3826.29
Emissions from delivered heating	6156.39	6156.39
Emissions from purchased steam	622.02	622.02

## C7.9

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Decreased

## C7.9a

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.**

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	23550	Decreased	5.21	Due to increased use of renewable energy, 23,550 tCO2e was reduced, Comparing our previous year's total Scope 1 and Scope 2 emissions (452,238 tCO2e), the emissions reduction percentage is 5.21% ( $23,550/452,238 \text{ tCO2e} * 100\% = 5.21\%$ ) A more detailed assessment is listed below: 2019 Purchase of EACs: 31,682 MWh resulting in 145,901 tCO2e reduction 2020 Purchase of EACs: 31,229 MWh resulting in 169,451 tCO2e reduction 2019 Carbon Loading 452,238 tCO2e $((169,451 \text{ tCO2e} - 145,900 \text{ tCO2e})/452,238 \text{ tCO2e}) * 100 = 5.21\% \text{ reduction}$



	(tCO2e)			
Other emissions reduction activities	48817	Decreased	10.79	<p>Due to 'other emissions reduction activities' implemented during the year 48,817 tons of CO<sub>2</sub>e were reduced by our emissions reduction projects (see further breakdown of these below). Compared with our previous year's total Scope 1 and Scope 2 emissions (452,238 tCO<sub>2</sub>e), the emissions reduction percentage is 10.79% (48,817/452,238 tCO<sub>2</sub>e*100% = 10.79%) Detailed supporting calculations associated with "Other Emission Reduction Activities" employed at our facilities is presented below:</p> $(-41,833)+(-942)+(2,683)+(-1,351)+(34)+(-8,513)+(797)+(308) = -48,817 \text{ tCO}_2\text{e}$ <p>Electricity Usage Reduction: 41,833 tCO<sub>2</sub>e 2019 Purchase of electricity: 960,752 MWh resulting in 457,163 tCO<sub>2</sub>e (before EACs) 2020 Purchase of electricity: 892,879 MWh resulting in 415,330 tCO<sub>2</sub>e (before EACs) 2019 Carbon Loading 452,238 tCO<sub>2</sub>e ((415,330 tCO<sub>2</sub>e - 457,163 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 9.25% reduction Delivered Heat/Steam Energy Reduction: 942 tCO<sub>2</sub>e 2019 Carbon Loading 452,238 tCO<sub>2</sub>e 2019 Purchase: 34,076 MWh resulting in 7,720 tCO<sub>2</sub>e 2020 Purchase: 29,919 MWh resulting in 6,778 tCO<sub>2</sub>e ((7,720 tCO<sub>2</sub>e - 6,778 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 0.21% reduction Delivered Cooling/Chilled Water Energy Increase: 2,683 tCO<sub>2</sub>e 2019 Purchase: 26,770 MWh resulting in 8,264 tCO<sub>2</sub>e 2020 Purchase: 33,845 MWh resulting in 10,947 tCO<sub>2</sub>e ((10,947 tCO<sub>2</sub>e - 8,264 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 0.59% increase Facility Fuel Use-Stationary Sources Energy Reduction: -1,351 tCO<sub>2</sub>e 2019 Purchase: 113,265 MWh resulting in 20,749 tCO<sub>2</sub>e 2020 Purchase: 101,594 MWh resulting in 19,398 tCO<sub>2</sub>e ((19,398 tCO<sub>2</sub>e - 20,749 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 0.30% reduction Facility Fuel Use-Mobile Sources Energy Increase: 34 tCO<sub>2</sub>e 2019 Purchase: 141 MWh resulting in 37 tCO<sub>2</sub>e 2020 Purchase: 268 MWh resulting in 71 tCO<sub>2</sub>e ((71 tCO<sub>2</sub>e - 37 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 0.01% increase Car Fleet Energy Reduction: -8,513 tCO<sub>2</sub>e 2019 Operation: 29,544 tCO<sub>2</sub>e 2020 Operation: 21,031 tCO<sub>2</sub>e ((21,031 tCO<sub>2</sub>e - 29,544 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 1.88% reduction Marine Vessels Energy Increase: 797 tCO<sub>2</sub>e 2019 Operation: 74,348 tCO<sub>2</sub>e 2020 Operation: 75,145 tCO<sub>2</sub>e ((75,145 tCO<sub>2</sub>e - 74,348 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 0.18% increase GHG Direct Losses Increase: 308 tCO<sub>2</sub>e 2019 Losses: 315 tCO<sub>2</sub>e 2020 Losses: 623 tCO<sub>2</sub>e ((623 tCO<sub>2</sub>e - 315 tCO<sub>2</sub>e)/452,238 tCO<sub>2</sub>e)*100 = 0.07 increase</p>
Divestment	0	No change	0	No change
Acquisitions	0	No change	0	No change
Mergers	0	No change	0	No change
Change in output	0	No change	0	No change
Change in methodology	0	No change	0	No change
Change in boundary	0	No change	0	No change



	(Gt) CO2e)			
Change in physical operating conditions	0	No change	0	No change
Unidentified	0	No change	0	No change
Other	0	No change	0	No change

## C7.9b

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**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Market-based

## C8. Energy

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### C8.1

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**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 0% but less than or equal to 5%

### C8.2

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**(C8.2) Select which energy-related activities your organization has undertaken.**

Indicate whether your organization undertook this energy-related activity in the reporting year	
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes



acquired steam	
Consumption of purchased or acquired cooling	Yes
Generation of electricity, heat, steam, or cooling	Yes

## C8.2a

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	101862.41	101862.41
Consumption of purchased or acquired electricity	<Not Applicable>	351229.23	541650.03	892879.26
Consumption of purchased or acquired heat	<Not Applicable>	0	27173.21	27173.21
Consumption of purchased or acquired steam	<Not Applicable>	0	2745.49	2745.49
Consumption of purchased or acquired cooling	<Not Applicable>	0	33845.23	33845.23
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	351229.23	707276.36	1058505.59

## C8.2b

**(C8.2b) Select the applications of your organization's consumption of fuel.**

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	Yes



generation

## C8.2c

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

**Fuels (excluding feedstocks)**

Fuel Oil Number 2

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

927.57

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

463.79

**MWh fuel consumed for self-generation of steam**

463.79

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

**Emission factor**

0.074

**Unit**

metric tons CO<sub>2</sub>e per million Btu

**Emissions factor source**

USEPA-Emission Factors for Greenhouse Gas Inventories. March 9, 2018

**Comment**

---

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

LHV (lower heating value)

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

42759.6

**MWh fuel consumed for self-generation of steam**

42759.6

**MWh fuel consumed for self-generation of cooling**

9502.13

**MWh fuel consumed for self-cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

**Emission factor**

0.05311

**Unit**metric tons CO<sub>2</sub>e per million Btu**Emissions factor source**

USEPA-Emission Factors for Greenhouse Gas Inventories. March 9, 2018

**Comment**

Based on 90% of energy employed in heating buildings, while 10% employed for cooling operations. Assume equal percentage of heat versus steam generation.

---

**Fuels (excluding feedstocks)**

Liquefied Petroleum Gas (LPG)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

1692.64

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

1692.64

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

**Unit**

metric tons CO<sub>2</sub>e per million Btu

**Emissions factor source**

USEPA-Emission Factors for Greenhouse Gas Inventories. March 9, 2018

**Comment****Fuels (excluding feedstocks)**

Diesel

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

85.48

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

**Emission factor**

0.27184

**Unit**

metric tons CO<sub>2</sub>e per MWh

**Emissions factor source**

USEPA-Emission Factors for Greenhouse Gas Inventories. March 9, 2018

**Comment**

Diesel employed in facility-associated mobile sources

**Fuels (excluding feedstocks)**

Motor Gasoline

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**



0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

**Emission factor**

0.26337

**Unit**metric tons CO<sub>2</sub>e per MWh**Emissions factor source**

USEPA-Emission Factors for Greenhouse Gas Inventories. March 9, 2018

**Comment**

Gasoline employed in facility-associated mobile sources

---

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

3952.57

**MWh fuel consumed for self-generation of electricity**

3952.57

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

**Emission factor**

0.40098

**Emissions factor source**

Bloom Energy-Manufacturers Data Sheet

**Comment**

Natural Gas employed in Fuel Cell that generates electricity for facility

---

**C8.2d**

**(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	3952.57	3952.57	0	0
Heat	44916.03	44916.03	0	0
Steam	43223.39	43223.39	0	0
Cooling	9502.13	9502.13	0	0

**C8.2e**

**(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.**

**Sourcing method**

Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

**Low-carbon technology type**

Wind

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**

United States of America

**MWh consumed accounted for at a zero emission factor**

18404.23

**Comment****Sourcing method**

Unbundled energy attribute certificates, International REC Standard (I-RECs)



**Country/area of consumption of low-carbon electricity, heat, steam or cooling**  
Canada

**MWh consumed accounted for at a zero emission factor**  
22159

**Comment**

---

**Sourcing method**

Unbundled energy attribute certificates, International REC Standard (I-RECs)

**Low-carbon technology type**

Hydropower

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**  
China

**MWh consumed accounted for at a zero emission factor**  
46072

**Comment**

---

**Sourcing method**

Unbundled energy attribute certificates, Guarantees of Origin

**Low-carbon technology type**

Hydropower

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**  
Finland

**MWh consumed accounted for at a zero emission factor**  
111486

**Comment**

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**Sourcing method**

Unbundled energy attribute certificates, Guarantees of Origin

**Low-carbon technology type**

Hydropower

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**  
France

**MWh consumed accounted for at a zero emission factor**  
21532

**Comment**

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**Low-carbon technology type**

Hydropower

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**

Poland

**MWh consumed accounted for at a zero emission factor**

53023

**Comment**

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**Sourcing method**

Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

**Low-carbon technology type**

Hydropower

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**

United States of America

**MWh consumed accounted for at a zero emission factor**

78553

**Comment**

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## C9. Additional metrics

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### C9.1

**(C9.1) Provide any additional climate-related metrics relevant to your business.****Description**

Energy usage

**Metric value**

351229231

**Metric numerator**

kWh of renewable electricity

**Metric denominator (intensity metric only)****% change from previous year**

16



### Please explain

2020 Target: Purchase 35% of the total purchased electricity from renewable sources.  
Result: In 2020, 39% of our total purchased electricity was from renewable sources. The target was achieved and exceeded. Calculations: 2019: 301,681,626 kWh, renewable electricity. 2020: 351,229,231 kWh, renewable electricity. 2020: 892,879,258 kWh, facilities electricity. Increase of renewable electricity between 2019-2020:  $((351,229,231 \text{ kWh} - 301,681,626 \text{ kWh}) / 301,681,626 \text{ kWh}) * 100 = 16\%$  Share of renewable electricity of total electricity on 2020:  $(351,229,231 \text{ kWh} / 892,879,258 \text{ kWh}) * 100 = 39\%$

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### Description

Energy usage

### Metric value

1058505595

### Metric numerator

kWh energy consumption in Nokia facilities

### Metric denominator (intensity metric only)

### % change from previous year

7

### Direction of change

Decreased

### Please explain

2020 Target: Reduce facility energy usage by 3% compared to 2019. Result: In 2020, energy consumption across our facilities decreased by 7% compared to 2019. The target was achieved and exceeded. Calculations: 2019 facility energy consumption: 1,134,841,023 kWh 2020 facility energy consumption: 1,058,505,595 kWh Decrease of facility energy usage on 2020:  $((1,058,505,595 \text{ kWh} - 1,134,841,023 \text{ kWh}) / 1,134,841,023 \text{ kWh}) * 100 = -7\%$

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### Description

Energy usage

### Metric value

283697

### Metric numerator

tCO<sub>2</sub>e

### Metric denominator (intensity metric only)

### % change from previous year

19

### Direction of change



2020 target: Reduce GHG emissions from facilities by 4%, compared to 2019 (Scope 1 and 2) Result: In 2020, GHG emissions from our facilities decreased by 19% compared to 2019. Calculations: 2019: 348,347 tCO<sub>2</sub>, market based scope 1&2 for facilities 2020: 283,697 tCO<sub>2</sub>, market based scope 1&2 for facilities Emission reduction: ((283,697 tCO<sub>2</sub> - 348,347 tCO<sub>2</sub>) / 348,347 tCO<sub>2</sub>) \* 100 = -19%

---

**Description**

Waste

**Metric value**

68

**Metric numerator**

utilization rate %

**Metric denominator (intensity metric only)****% change from previous year**

39

**Direction of change**

Increased

**Please explain**

2020 target: Recycle at least 65% of facility waste Result: In 2020, we recycled 68% of the facility waste and the total waste utilisation rate was 81%. The target was achieved.

Calculation: 2019: 49% recycled facility waste 2020 68% recycled facility waste Change: ((68% - 49%) / 49%) \* 100 = 39 percentage points

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## C10. Verification

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### C10.1

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(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place



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(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

[Nokia\\_People\\_and\\_Planet\\_Report\\_2020.pdf](#)

**Page/ section reference**

page 104, Scope 1 GHG emissions pages 114-115, Independent practitioner's assurance report

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

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## C10.1b

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(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

[Nokia\\_People\\_and\\_Planet\\_Report\\_2020.pdf](#)

**Page/ section reference**

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

**Scope 2 approach**

Scope 2 location-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**Nokia\_People\_and\_Planet\_Report\_2020.pdf**Page/ section reference**

page 104, Scope 2 GHG emissions, both market-based and location-based are assured

pages 114-115, Independent practitioner's assurance report

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

## C10.1c

**(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

**Scope 3 category**

Scope 3: Use of sold products

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Page/section reference**

pages 104-105, Scope 3 GHG emissions pages 114-115, Independent practitioner's assurance report

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

91

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## C10.2

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**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

### C10.2a

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**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Progress against emissions reduction target	ISAE3000	<p>Related to CDP C4.1a, our progress against our Science Based Targets (SBT) is externally assured. The SBTs are key environmental targets for us and they were also linked to the margin of our EUR 1,500 million five-year multi-currency revolving credit facility ("RCF") in 2019. Hence we want to continue to strengthen the reliability of the process and figures by getting a third-party assurance. Also targets in 4.2a are assured as part of S1&amp;2 and SBT target assurance.</p> <p>Related to C4.3, following indicators are externally assured: "Energy consumption within Nokia, by types of energy (GWh) and change to 2019 (%)" and "Renewable electricity amount (GWh) and portion of total electricity consumption (%)." This data is assured to strengthen the reliability of our energy and renewable electricity target tracking.</p> <p>Assurance statement is available on pages 114-115 of our sustainability report People &amp; Planet 2020 (attached).</p> <p><a href="#">Nokia_People_and_Planet_Report_2020.pdf</a></p>



relates to			
C8. Energy	Other, please specify (Energy consumption within Nokia, by types of energy (GWh) and change to 2019 (%) and "Renewable electricity amount (GWh) and portion of total electricity consumption (%))	ISAE3000	Related to CDP C8.2a, 8.2c and 8.2e, following indicators are externally assured: "Energy consumption within Nokia, by types of energy (GWh) and change to 2019 (%)" and "Renewable electricity amount (GWh) and portion of total electricity consumption (%)." This data is assured to strengthen the reliability of our energy and renewable electricity target tracking. Assurance statement is available in pages 114-115 of our sustainability report People & Planet 2020 (attached). <a href="#">Nokia_People_and_Planet_Report_2020.pdf</a>
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	ISAE3000	Scope 1 and 2 data is assured. Assurance statement is available on pages 114-115 of our sustainability report People & Planet 2020 (attached). <a href="#">Nokia_People_and_Planet_Report_2020.pdf</a>
C6. Emissions data	Year on year change in emissions (Scope 3)	ISAE3000	Scope 3 data is assured for Category 11, use of sold products. That covers 91% of scope 3 emissions. Assurance statement is available in pages 114-115 of our sustainability report People & Planet 2020 (attached). <a href="#">Nokia_People_and_Planet_Report_2020.pdf</a>
C5. Emissions performance	Other, please specify (Base year data and used protocols)	ISAE3000	Base year (2014) data is assured in the People & Planet 2016 report, where base year for combined company was published the first time. Assurance statement is available in pages 178-180 of our sustainability report People & Planet 2016 (attached). Reporting according to GHG protocol is assured, when scope 1, 2 and 3 data is assured. Assurance statement is available in pages 114-115 of our sustainability report People & Planet 2020 (attached). <a href="#">Nokia_People_and_Planet_Report_2020.pdf</a> <a href="#">nokia_people_and_planet_report_2016_4.pdf</a>
C7. Emissions breakdown	Year on year change in emissions (Scope 1 and 2)	ISAE3000	Source data for emission breakdowns are assured, when Scope 1&2 data is assured. Assurance statement is available in pages 114-115 of our sustainability report People & Planet 2020 (attached). <a href="#">Nokia_People_and_Planet_Report_2020.pdf</a>

## C11. Carbon pricing

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### C11.1

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**(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

No, and we do not anticipate being regulated in the next three years



## C11.2

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**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

No

## C11.3

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**(C11.3) Does your organization use an internal price on carbon?**

No, but we anticipate doing so in the next two years

## C12. Engagement

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### C12.1

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**(C12.1) Do you engage with your value chain on climate-related issues?**

Yes, our suppliers

Yes, our customers

### C12.1a

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**(C12.1a) Provide details of your climate-related supplier engagement strategy.**

**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

3

**% total procurement spend (direct and indirect)**

61

**% of supplier-related Scope 3 emissions as reported in C6.5**

7



pliers based on three dimensions 1) energy intensity of their sector, 2) strategic relevance and 3) our spend with the suppliers. Related to dimension 1, energy intensive suppliers include e.g. component manufacturers, final assembly, transportation and data centers. Related to dimension 2, we have category strategies and our aim is to have all our "highly ranked", i.e. "preferred" and "allowed" suppliers covered by CDP and hence CDP covers also non-energy intensive suppliers. We are engaging with these suppliers to maximize our impact: we are targeting suppliers with the highest emissions as well as suppliers with which we have most spend and/or which are strategic to us, i.e. where we can influence most. In 2020 around 3% of our suppliers by number reported to us, covering anyhow around 61% of supplier spend and around 45% of emissions of GHG Scope 3 Category 1: Purchased good and services.

### **Impact of engagement, including measures of success**

We measure the success via several CDP program metrics, especially with number of suppliers responding to CDP, coverage of spend by the responded suppliers and GHG data suppliers allocated for Nokia. As a result of the awareness and engagement campaign every year, the amount of the suppliers who disclose climate information through CDP to us is increasing year on year (from 66 in 2012 to 430 in 2020). Various performance indicators such as # of suppliers actually reporting GHG emissions and related savings, # of suppliers purchasing renewable energy and # of suppliers setting emission reduction targets, including in line with Science Based Targets is increasing year on year.

### **Comment**

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#### **Type of engagement**

Engagement & incentivization (changing supplier behavior)

#### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change

Climate change performance is featured in supplier awards scheme

#### **% of suppliers by number**

3

#### **% total procurement spend (direct and indirect)**

61

#### **% of supplier-related Scope 3 emissions as reported in C6.5**

7

#### **Rationale for the coverage of your engagement**

We use CDP Supply Chain -program as a means to engage with our suppliers. To make the greatest impact on GHG emissions caused by Nokia's supply chain, we prioritize suppliers based on three dimensions 1) energy intensity of their sector, 2) strategic relevance and 3) our spend with the suppliers. Related to dimension 1, energy intensive suppliers include e.g. component manufacturers, final assembly, transportation and data centers. Related to dimension 2, we have category strategies and our aim is to have all our "highly ranked", i.e. "preferred" and "allowed" suppliers covered by CDP and hence CDP covers



We are engaging with these suppliers to maximize our impact: we are targeting suppliers with the highest emissions as well as suppliers with which we have most spend and/or which are strategic to us, i.e. where we can influence most.

### **Impact of engagement, including measures of success**

We measure the success of our supplier engagement via several CDP program metrics: 1) the number of suppliers we have invited to respond to CDP 2) the number of our suppliers that participate in CDP climate change webinars 3) the number of our suppliers that have set carbon reduction targets 4) whether Nokia's requests or initiatives prompted suppliers to take emission reduction initiatives and 5) how much savings (both in GHG emissions and in €) have been achieved. We also monitor whether our suppliers engage their own suppliers and if they propose collaborative climate projects with us. We have noticed a learning curve among our suppliers; some do not respond in the first year but start to report more advanced climate data and actions after a year or so. In 2020, we invited 690 (675 in 2019) suppliers to respond to the CDP Supply Chain questionnaire. Out of those, 295 supplier attendees attended CDP climate change webinars, 430 suppliers responded to the CDP questionnaire (404 in 2019) and 221 (212 in 2019) reported reductions in GHG emissions. 262 (234 in 2019) suppliers had active targets for emission reduction. During the reporting year the total savings from our suppliers' carbon reduction initiatives was 33 million metric tons of CO<sub>2</sub>e and approximately EUR 558 million. 204 (184 in 2019) suppliers reported that they engaged their own suppliers and 73 (55 in 2019) highlighted collaborative opportunities with us, such as increased logistics efficiency, shifting to more digitalized services and optimized business travelling with our service suppliers. In addition to engagement via the CDP Supply Chain program, energy efficiency is also part of our supplier requirements. Supplier requirements are applicable to all our suppliers and compliance is continually checked as part of our supplier audits. In 2020 we made 24 in-depth onsite audits. There were 46 findings related to environmental management overall in those in-depth audits, some of them related to improvement needs on the energy efficiency programs.

### **Comment**

---

#### **Type of engagement**

Innovation & collaboration (changing markets)

#### **Details of engagement**

Run a campaign to encourage innovation to reduce climate impacts on products and services

#### **% of suppliers by number**

3

#### **% total procurement spend (direct and indirect)**

61

#### **% of supplier-related Scope 3 emissions as reported in C6.5**

7



We will report based on this new target for 2021 data onward. Our assembly suppliers were added into Nokia's SBT target when it was recalibrated. Additionally, we have set our main assembly suppliers that they should reach net zero emissions in their Nokia relevant manufacturing part. In 2020 we engaged all our suppliers that are part of our CDP programme in a campaign related to Science Based Targets. Rational for scoping: energy intense categories, strategic relevance and spend (all together 403 suppliers).

### **Impact of engagement, including measures of success**

If earlier engagement has been around learning and capability building for suppliers to be able to measure CO2 by 2020 it has turned to a strategic partnership towards achieving our 2030 aspiration and helping to commonly address the challenge to limit average rises in temperatures to 1.5C. We communicated to all of our suppliers Nokia own SBT commitment and expectations from them. We have already collected initial roadmaps from top suppliers and will be working alongside to help them to achieve those by sharing our own learnings from Nokia organization.

### **Comment**

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## **C12.1b**

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### **(C12.1b) Give details of your climate-related engagement strategy with your customers.**

#### **Type of engagement**

Education/information sharing

#### **Details of engagement**

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

#### **% of customers by number**

50

#### **% of customer - related Scope 3 emissions as reported in C6.5**

50

#### **Portfolio coverage (total or outstanding)**

<Not Applicable>

#### **Please explain the rationale for selecting this group of customers and scope of engagement**

Around 90% of our total carbon footprint is caused by the use of sold products by our customers in communications networks, therefore it is essential that we work with our customers on reducing power consumption, increasing energy and material efficiency and innovating across design – manufacture – deliver – operate – end of life chain, and promoting circular practices. Products from our Mobile Networks business group account for a large proportion of the sold product in use carbon emissions, and the advent of 5G



Mobile Network operators who represented approximately 50% of Nokia sales in 2020. We continue our engagement through global campaigns on Zero Emission products, AirScale base station, and software features reducing energy consumption and Nokia innovation liquid cooling. In 2020 we held customer workshops and review meetings on the benefits of 5G, related energy efficiency features and emphasized the capability for 5G to enable operators to flatten the energy curve data grows. We announced the results of research undertaken with Telefónica (a global telco operator) which showed 5G networks were up to 90 percent more energy efficient per traffic unit than legacy networks. The research was carried out over a three-month period and targeted the power consumption of the Radio Access Network (RAN) in Telefónica's network. Beyond mobile radio access products we also engage with our customers on other areas of our portfolio.

### **Impact of engagement, including measures of success**

The success of engagement with our customers can be indirectly measured through our Science Based Targets, specifically the category "Use of sold products". We commit to reduce our emissions by 50% across all Scopes (1, 2, and 3) between 2019 and 2030 in our 1.5°C aligned Science Based Targets. The Scope 3 target includes almost 100% of our current product portfolio as well as logistics and EMS manufacturing. We have regular review meetings with key larger customers and sustainability issues are included in sales proposal responses. We also share as requested with smaller/medium sized customers our approach to sustainable development, materiality and environmental actions as well as our related programs. In 2020 we again delivered zero emission products to more than 150 customers worldwide, and the networks we modernized used on average 54% less energy than those that were not modernized. Modernizing a typical legacy base station site to Single RAN can achieve an energy saving of up to 70 percent and reduce its annual carbon emissions from more than 70 tons to just 17 tons. Over 20 percent of our radio products in the field have one or more energy efficiency software features activated. With enhanced energy efficiency improvements, our AirScale radio base station products have up to 69 percent lower energy consumption than our previous generation radio. All of these features, functions and actions not only reduce energy consumption and carbon footprint, but also brings financial savings for our customers. In 2020 we also introduced solutions such as our new AVA Energy Efficiency service which applies Artificial Intelligence (AI) to further reduce energy usage in 4G, 5G and multivendor legacy networks. Our digital deployment service offering which removes the need for much of the physical presence and administration of network deployments, and robust power management and distribution solutions also further enhance the energy efficiency of our radio networks. We also drive energy efficiency gains and innovations across our broader product and solution offering. In fixed networks, we finalized new in-house developed Quillion chipsets for fiber broadband. This allows us to offer power optimized and other energy saving features that result in a 35 percent and a 50 percent power reduction per GPON and XGS-PON port respectively.

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### **Type of engagement**

Collaboration & innovation

### **Details of engagement**

Run a campaign to encourage innovation to reduce climate change impacts

**% of customer - related Scope 3 emissions as reported in C6.5**

50

**Portfolio coverage (total or outstanding)**

&lt;Not Applicable&gt;

**Please explain the rationale for selecting this group of customers and scope of engagement**

We targeted our telecom operator customers for our campaigns, launches and virtual engagement during a year when physical restrictions were in place around the globe. We engage regularly in different channels with these customers as around 90% of our total carbon footprint is caused by the use of sold products in our customers communications networks and the largest contributor is our Mobile Networks business group. We believe it is important to design, build and deliver technology innovations that produce the greatest positive impact on reducing GHG emissions as core to our contribution to combatting climate change. In 2020 with the telecom operator Elisa in Finland, we brought the first 5G liquid cooled base station into commercial use in a live network. We further promoted zero emission functions and features through our online campaigns, launched a call to action campaign called Life in 2030 which proposed that the deployment of 5G is built on the principles of equality, trust, sustainability and people first. We continued our collaboration with the Joint Audit Cooperation (JAC) initiative, the association of some of the world's largest telecom operators who jointly work with suppliers such as Nokia. In February 2020, before the pandemic situation exploded, we also participated in and contributed to the JAC Forum in Macao, China where topics included energy efficiency, and circularity.

**Impact of engagement, including measures of success**

We installed the world's first liquid-cooled 5G base station in Elisa's network in Finland in 2020, which eliminates the need for expensive cooling systems, reducing site space, lowering energy consumption and cutting carbon emissions by up to 80%. We further promoted our latest chipsets for radio, optical and fixed networks which all bring big energy savings and help reduce emissions. Read more on these and other solutions at Combating climate change | Nokia As a result of our engagement with key customer in the JAC initiative we also received a best practice recognition for our work in circular economy. We work to promote and collaborate with industry and enterprises particularly manufacturing, energy, and webscale companies to provide network solutions that enable them to cut their emissions. we believe 5G and digitalization will underpin the 4th industrial revolution, making it the first truly sustainable industrial revolution. The mobile industry can help reduce the emissions in other industries such that the level of avoided emissions enabled by mobile communications technologies is ten times greater than its own footprint. as confirmed in research by the GSMA (Global Mobile Association) and the Carbon Trust. In 2020 we had over 150 customers who use one or more of our zero emission solutions actively. And the customer networks we modernized during 2019 used 54% less energy on average compared to those not modernized. In Finland we also contributed to the Climate and Environmental Strategy for the ICT Sector under the Ministry of Transport and Communications. The pandemic has shown the criticality of communications networks also in driving change that results in reduced emissions. For example, we deployed a 5G private wireless network for Lufthansa Technik's inspection service en-



bon footprint of this service.

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### C12.3

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**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

- Trade associations
- Funding research organizations
- Other

### C12.3b

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**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

### C12.3c

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**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

**Trade association**

DIGITALEUROPE

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

DIGITALEUROPE's vision is a Europe where digital technologies, innovation, and artificial intelligence can provide Europe's people with competitive jobs, better health, and better public services. A strong unfragmented DIGITAL EUROPE that takes leadership in creating digital Inclusion, Green growth, Innovation, Trust, Agile mission-based policy making that drives prosperity and creates benefits for the European society and leads globally in an open economy. As part of Green Growth DIGITALEUROPE advocates that Europe should continue to build a framework for a sustainable, low-carbon, and resource-efficient Europe that is fit for the fast-moving innovations in the ICT sector and leverages the true potential of digital technologies as key enablers for green growth. (See <https://www.digitaleurope.org/policies/strongerdigitaleurope/>) DIGITALEUROPE has a policy group dedicated to Digital Sustainability that deals with chemicals, eco-design,



Sustainable Development Goals (SDGs), circular economy and decarbonisation objectives, and DIGITALEUROPE believes that the following key aspects should be considered by the incoming EU institutions. This position is further detailed in the Call to Action for Digitalisation as key for a sustainable Europe [https://www.digitaleurope.org/wp/wp-content/uploads/2019/06/Narrative\\_Sustainability.pdf](https://www.digitaleurope.org/wp/wp-content/uploads/2019/06/Narrative_Sustainability.pdf).

**How have you influenced, or are you attempting to influence their position?**

Through our active participation at all levels of the association we drive the vision of the association as well as help shape the individual positions in the Digital Sustainable Policy Group (DSPG). Notably, Nokia holds the position of President of the Executive Board as well as a vice-chair position in the DSPG.

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**Trade association**

Nokia is member of several national trade associations in Europe, for example Technology Industries of Finland

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

Technology Industries of Finland is the lobbying organisation for technology industry companies . They impact on national and EU decision making by providing information of technology industry (see <https://teknologiateollisuus.fi/en/technology-industries-finland>). They have a presence in numerous international organisations, for example Orgalime, DIGITALEUROPE and CENELEC (see <https://teknologiateollisuus.fi/en/about/international-cooperation-bodies>).

**How have you influenced, or are you attempting to influence their position?**

Nokia is member of all six working groups in Technology Industries of Finland, including Sustainable development working group (see <https://teknologiateollisuus.fi/en/node/556>). We influence via those working groups by active participation.

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## C12.3d

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**(C12.3d) Do you publicly disclose a list of all research organizations that you fund?**

No

## C12.3e

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**(C12.3e) Provide details of the other engagement activities that you undertake.**



(Environmental Engineering) and ITU-T Study Group 5 (Environment, climate change and circular economy) where we hold official positions (editors, associate rapporteurs, WP vice-chair). Commonly agreed measurement standards are the basis for reporting energy performance of the products.

We have been participating in ETSI standardization work for more than ten years. In 2020, measurement methodology work related to 5G radio energy efficiency was finalized as an addition to existing ETSI energy efficiency standards for mobile networks.

Nokia has been involved in the collaboration work between ITU-T, GESI, IEA and SBTi (joint initiative by CDP, the UN Global Compact, the World Resource Insitutue and WWF international), in order to work jointly on the development of GHG emission trajectories for the ICT sector, and sub-sectors with figures for 2025, 2030 and 2050. Nokia was also a co-editor in ITU-T work on a Methodology for assessing the aggregated positive sector-level impacts of ICT in other sectors.

Efficient material usage in Circular Economy has a positive effect on the climate as emissions can be reduced e.g. in material collection and manufacturing. Nokia has been involved in the ITU-T and ETSI Circular Economy standardization work.

## C12.3f

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### **(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

We have an active global network of people with global positions, and the messages are agreed jointly in regular meetings between all relevant colleagues. Processes-wise we have e.g. training and governance which support the consistency. Environmental management, including climate change topics, as well dealing with government officials are part of Nokia Code of Conduct (CoC) and there is an annual mandatory CoC training called Ethical Business Training for all employees (96% of our employees conducted the training in 2020). As part of our certified Environmental management system, based on ISO 14001, we also arrange different environmental trainings and conduct internal audits. Our Environmental management system is globally certified according to ISO 14001 and the external audits done by a third party check consistency with our internal guidelines and ISO 14001 requirements.



nologies that incorporate environmentally sustainable principles. Life cycle thinking is a key component of this approach. It helps us reduce our products' lifetime environmental impact by improving material and energy efficiency and enables compliance with both regulatory and our own requirements. We provide an environmental product declaration (EPD) to our customers for most of our products. In the EPD we detail environmental data for our products, including material composition, carbon footprint, power consumption and recycling instructions.

What comes to governance, both GLT (Group Leadership Team) and board of directors are informed of climate topics. Company wide Sustainability Council covers climate topics.

our Government Relations (GR), and Sustainability and Environment teams all belong to the same organization and work regularly together. Specifically related to industry associations, which are developing joint industry views on various policy issues, GR team is centrally coordinating Nokia representation in the associations. This central coordination ensures consistency in messaging even when different experts across Nokia engage in different work streams of Industry associations across continents. Issues are discussed also at the management team level, for example in our Sustainability Council and including people who are in charge or both implementing and developing strategy and policy activities, to ensure consistency of messages with the strategy. All our policy engagements are consistent with the company's overall sustainability strategy.

## C12.4

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**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

[Nokia\\_People\\_and\\_Planet\\_Report\\_2020.pdf](#)

**Page/Section reference**

Combating climate change, pages 43-58 and Environmental data, pages 104-108

**Content elements**



Emissions figures  
Emission targets  
Other metrics

**Comment**

People & Planet 2020 report contains information of Nokia's sustainability targets achievements and working methods.

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**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

[Nokia\\_Form\\_20F\\_2020.pdf](#)

**Page/Section reference**

Sustainability and corporate responsibility, pages in report 102-111

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emission targets  
Other metrics

**Comment**

Nokia Annual Report on Form 20-F 2020 contains information of Nokia's financial data but also about sustainability governance, strategy and targets, including for example combating climate change and responsible sourcing.

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**Publication**

In voluntary communications

**Status**

Complete

**Attach the document****Page/Section reference**

Nokia's responses for Ecovadis survey are available via Ecovadis.

**Content elements**

Emissions figures  
Emission targets  
Other, please specify (E.g. water consumption, hazardous waste, energy consumption )

**Comment**



their suppliers. Over 40 of our customers are using the Ecovadis platform to review our sustainability performance. We further utilize Ecovadis to engage with our own suppliers through sustainability assessments.

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## C15. Signoff

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### C-FI

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**(C-FI)** Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

### C15.1

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**(C15.1)** Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Financial Officer	Chief Financial Officer (CFO)



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