Telenor Group's response to CDP 2018

Climate Change (Investor CDP) for the reporting year 1 January–31 December 2017

Sector: Telecommunications
Industry Group: Diversified Telecommunication Services
Sub Industry: Integrated Telecommunication Services

https://www.cdp.net/

Telenor Group - Climate Change 2018

C0. Introduction

C0.1

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

By year-end 2017, Telenor Group had 178 million mobile customers in 12 markets across Scandinavia, Central Eastern Europe and Asia. We hold #1 or #2 positions in most of our markets.

Majority ownership of all core assets enables strong governance and global scale benefits. We are committed to responsible business conduct and driven by the ambition of empowering

societies. Connectivity has been Telenor's domain for more than 160 years, and our purpose is to connect our customers to what matters most.

This CDP report for 2017 does not include performance data from our Indian operations. In 2017, Telenor announced that it entered into an agreement to sell its assets in India and since then Telenor India has been treated as an asset held for sale and discontinued operations in Telenor's financial and non-financial reporting for 2017.

In 2018, Telenor announced that it entered into an agreement to sell its assets in Central and Eastern Europe to PPF Group. Following regulatory approvals the transaction was completed by

end of July 2018. The transaction includes Telenor's wholly-owned mobile operations in Hungary, Bulgaria, Montenegro and Serbia.

This climate related report submitted to CDP contains statements regarding the future in connection with the Telenor Group's outlook, strategies and objectives. All statements regarding the future are subject to inherent risks and uncertainties and many factors can lead to developments deviating substantially from what has been expressed or implied in such statements.

For more information about Telenor Group, please visit www.telenor.com .

C0.2

(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
Row 1	January 1 2017	December 31 2017	Yes	3 years
Row 2	January 1 2016	December 31 2016	<Not Applicable>	<Not Applicable>
Row 3	January 1 2015	December 31 2015	<Not Applicable>	<Not Applicable>
Row 4	January 1 2014	December 31 2014	<Not Applicable>	<Not Applicable>

C0.3

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

Bangladesh
Bulgaria
Denmark
Hungary
Malaysia
Montenegro
Myanmar
Norway
Pakistan
Serbia
Sweden
Thailand

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

NOK

C0.5

(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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Financial control

C1. Governance

C1.1

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

Yes

C1.1a

(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board/Executive board	Climate-related issues are a material concern for Telenor. Reflecting this relevance, oversight is with the Sustainability and Compliance Committee of the Board of Directors. The Committee supports the Board of Directors in fulfilling the Board's responsibilities with respect to sustainability and compliance issues; specifically it addresses issues related to climate and environment, human rights, labour standards and anti-corruption.

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	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies	The Committee supports the Board of Directors in fulfilling the Board's responsibilities with respect to sustainability and compliance issues; specifically it addresses issues related to climate and environment, human rights, labour standards and anti-corruption. In its work, the Committee is guided by international conventions and standards, the Telenor Code of Conduct, Group Policies and Manuals relevant to the scope of the Committee. The Committee supervises that the company has put in place policies, systems and reporting for the said areas.

C1.2

(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify (The Chief Corporate Affairs Officer)	Both assessing and managing climate-related risks and opportunities	Annually

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.

i. The Chief Corporate Affairs Officer (CCAO) is a member of the Group Executive Management (GEM) which is an advisory body to the Group's CEO.

ii. The CCAO has the overall responsibility for all corporate sustainability areas including climate-related issues and non-financial reporting.

iii. The CCAO has the overall policy responsibility for climate-related issues in Telenor Group including climate ambitions, strategy, overall measures/initiatives and climate reporting.

iv. The CCCAO is regular briefed by Group Sustainability on major climate issues and internal processes . The CCAO regular briefs Sustainability Committee at Board level on major climate issues and annual status on climate ambitions, strategy and overall measures/initiatives.

C1.3

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

Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.

Who is entitled to benefit from these incentives?
Corporate executive team

Types of incentives
Monetary reward

Activity incentivized
Efficiency target

Comment
The Telenor Group Executive Management (GEM) has a short-term incentive (STI) plan is designed to help drive desired leadership behaviours and deliver results in different areas of the business. It is a cashbased plan where the maximum annual earning is 50% of the annual base salary for the President and CEO and Group Executive Management. The design reflects the key priorities of Telenor Group and contains both financial, operational and responsible business conduct related performance targets, where the Responsible Business Conduct focus is to drive sustainable business operations across all markets. Responsible business conduct continues to be a key priority across the Telenor Group and the supply chain. This is embedded in the short-term incentive plan as a holistic measure for each participant, reflecting the executives' role and responsibilities in this area.

Who is entitled to benefit from these incentives?
Business unit manager

Types of incentives
Monetary reward

Activity incentivized
Efficiency target

Comment
Business unit mangers have cashbased incentive plans that are designed to reflect both key priorities of Telenor Group and the local business unit. Each incentive plan contains both financial, operational and responsible business conduct related performance targets, where the Responsible Business Conduct focus is to drive sustainable business operations across all markets. All business units have a commitment towards stabilising their energy consumption by continue to drive energy efficiency initiatives across their network operations and facilities.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	0	2	Risk management is a continuous process and an integrated part of business throughout all entities' in Telenor Group. All managers are required to assume responsibility for risk management within their areas of responsibility and ensure that risk management is embedded in day to day business processes.
Medium-term	2	3	Risk management is a continuous process and an integrated part of business throughout all entities' in Telenor Group. All managers are required to assume responsibility for risk management within their areas of responsibility and ensure that risk management is embedded in day to day business processes.
Long-term	3	10	Risk management is a continuous process and an integrated part of business throughout all entities' in Telenor Group. All managers are required to assume responsibility for risk management within their areas of responsibility and ensure that risk management is embedded in day to day business processes.

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	Climate change is one of the most complex challenges facing people, businesses and governments. Climate related risks include potential damage to vital infrastructure and utilities through the impact of more extreme weather. The mobile industry will risk continued growth in its total energy consumption and carbon footprint as mobile operators continue to increase their coverage, acquire more customers and develop more mobile broadband services due to market needs. Changing regulations, significant reductions in renewable energy costs and concerns about energy security will impact global energy markets.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

Risk management in Telenor is a continuous process and an integrated part of business throughout all entities' in Telenor Group. All managers are required to assume responsibility for risk management within their areas of responsibility and ensure that risk management is embedded in day to day business processes.

Since 2008, Telenor Group has established documented processes which consider climate change risks and opportunities as part of our total business risk and opportunity management process.

At company level:

• The Board of Director assesses risk thoroughly in connection with new investments, and on an ongoing basis in relation to existing investments. The Group Executive Management has implemented a systematic Group-wide enterprise risk management process.

• A dedicated climate organisation – as a part of our Sustainability organisation - focuses on the climate change risks and opportunities, both at Group level and Business Unit level. The identification process is performed at regular intervals assessing potential new climate

change risks and opportunities. The assessment includes regulatory, physical and reputation risks and opportunities arising from climate change. In the same process, known and existing risks and opportunities are reassessed and updates.

At asset level:

• Telenor assesses climate risks at each individual country of operation. The negative impacts to the company's physical assets, i.e. the physical telecommunication infrastructure of each country are rated against the climate risks identified. Besides the physical telecommunication infrastructure, negative impacts on service delivery to customers, negative impacts to operation and management of our company and negative impacts to company finances are assessed. Each production site has to predict how the climate risks will evolve in the future, rate the likelihood that the damage/risk event will happen given their climate change projections and the vulnerability of their assets.

• Climate change related risks and opportunities are integrated part of this business management framework and is part of all the annual business strategy update.

How your organization defines substantive financial or strategic impact on your business:

When operating across multiple markets, Telenor Group is exposed to a range of risks that may affect its business. The quality and reliability of Telenor Group's telecommunications services depends on the stability of its network and the networks of other service providers with which it interconnects. These networks are vulnerable to damage or service interruptions. Climate related risks include potential damage to vital infrastructure and utilities through the impact of more extreme weather. The mobile industry will risk continued growth in its total energy consumption and carbon footprint as mobile operators continue to increase their coverage, acquire more customers and develop more mobile broadband services due to market needs. Changing regulations, significant reductions in renewable energy costs and concerns about energy security will impact global energy markets. Telenor Group's financial strategy and financial ambitions are linked to our corporate strategy, focusing on continued growth, efficiency and simplification as key value drivers for the coming years. The company has communicated its financial ambitions towards 2020 to the financial market, summarised as low single digit organic revenue growth, 1-3% yearly net reduction in operating expenditures, and a capex-to-sales ratio of around 15%. Any major deviations to these quantitative metrics for the company's financial ambitions towards 2020 will be regarded as "substantive financial impact".

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Relevance to Telenor: Telenor's operations are subject to requirements through sector specific laws, regulations and national licenses. Regulatory developments and regulatory uncertainty could affect the company's results and business prospects. Example of a specific risk considered: The current EU 2030 Framework for climate and energy contains a binding target to cut emissions in EU territory by at least 40% below 1990 levels by 2030. This will require renewing an EU's ageing energy systems including increased use of renewable energy soruces as well as energy efficiency initiatives which could have an financial impact to Telenor though increased capex and/or opex.
Emerging regulation	Relevant, always included	Relevance to Telenor: Telenor's operations are subject to requirements through sector specific laws, regulations and national licenses. Regulatory developments and regulatory uncertainty especially in Telenor's Asian operations (Pakistan, Bangladesh, Thailand, Malaysia and Myanmar) could affect the company's results and business prospects. Example of a specific risk considered: Climate-related regulatory risks can imply increased compliance costs related to company operations (capex and opex) , payment of fines/ tariffs and for example involvement in carbon trading schemes.
Technology	Relevant, always included	Relevance to Telenor: Telenor's revenue growth is partly dependent on the commercially successful development and deployment of new products, services and technologies. Climate-related technology risks can imply increased capex and opex costs related to cost efficient energy initiatives such as renewable energy sourcing, network swaps, sourcing of energy-efficient technologies, infrastructure-sharing and energy efficient data centres and buildings. Example of a specific risk considered: The mobile industry will risk continued growth in its total energy consumption and carbon footprint as mobile operators continue to increase their coverage, acquire more customers and develop more mobile broadband services due to market needs. The mobile industry requires significant amounts of electricity in Telenor's network operations, and most power is supplied on-grid by national power generation companies. In Telenor's Asian operations, the company also relies heavily on diesel used in its on-site generators to power infrastructure offgrid in remote locations or areas of unreliable on-grid power. Telenor's key climate measure has the last ten years been to stabilise the energy consumption in its networks while increasing market footprint, since network operations represent around 90 per cent of Telenor's total CO2 emissions. Telenor's Asian markets are very different from its European markets, both in the company's carbon footprint and the type of energy that Telenor uses for its network operations. In general, developing countries will have the opportunity to leapfrog into the renewable age, and Telenor has already, in several of its Asian operations, started to replace traditional diesel-based on-site generators with cost-efficient solar/battery renewable energy technology. Going forward, Telenor will plan for a scale-up of renewable energy combined with continued focus on energy efficiency initiatives in all of its network operations, resulting in both potential savings in operating expenses and reduced CO2 emissions.
Legal	Not relevant, explanation provided	Relevance to Telenor: Risk of climate-related litigation claims is not very likely to Telenor. Climate change is one of the most complex challenges facing people, businesses and governments – but the mobile industry's technology and smart services through the Internet of Things (IoT) is regarded as instrumental to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits.
Market	Relevant, sometimes included	Relevance to Telenor: Climate related consumer awareness will grow in the following years, and there is a risk that especially corporate clients will include climate-related requirements in their tender processes. Example of a specific risk considered: Telenor faces the risk that our consumers are increasingly aware of the climate change problematic and its negative consequences. Telenor has over the years engaged with the industry organisations – such as GSMA and GeSI – and industry partners to embrace these opportunities. The SMARTer 2030 report (co-financed and supported by Telenor) identified a number of sectors where the enabling potential of ICT can deliver significant carbon emissions reduction – up to 20 per cent by 2030 and close to ten times the ICT industry's own direct emissions. This places ICT as one of the key instruments for the achievement of the climate commitments undertaken in Paris and the implementation of related national action plans.
Reputation	Relevant, sometimes included	Relevance to Telenor: Telenor faces the risks that climate related customer or community perceptions will impact our company's commercial development due to consumers and are increasingly aware of the climate change problematic and its negative consequences. Consumers are increasingly expecting companies to actively engage with regards to climate change. Example of a specific risk considered: Telenor faces the risk that our consumers are increasingly aware of the climate change problematic and its negative consequences. Telenor has over the years engaged with the industry organisations – such as GSMA and GeSI – and industry partners to embrace these opportunities. The SMARTer 2030 report (co-financed and supported by Telenor) identified a number of sectors where the enabling potential of ICT can deliver significant carbon emissions reduction – up to 20 per cent by 2030 and close to ten times the ICT industry's own direct emissions. This places ICT as one of the key instruments for the achievement of the climate commitments undertaken in Paris and the implementation of related national action plans.
Acute physical	Relevant, always included	Relevance to Telenor: Telenor's Nordic operations face risk to infrastructure due to increased frequency of storms and more extreme winter weather conditions. Due to climate change, the intensity and frequency of storms and extreme weather conditions is supposed to increase. Example of a specific risk considered: In Denmark, there is likelihood of more than once every 10 years with damage to transmission towers and antennas caused by heavy wind and storms due to climate change to 1-5% of Telenor's assets in Denmark and long-term disruptions of the service delivery.
Chronic physical	Relevant, always included	Relevance to Telenor: Telenor's operations and infrastructure in Asia are exposed to flooding risks and rising sea levels. Climate research predicts the sea level to rise because of melting ice and the expansion of water. The rising sea level poses a risk to all countries at very low altitudes, in particular to Bangladesh which is highly threatened by the rising sea level. Example of a specific risk considered: Flooding has the potential to damage Telenor's buildings and network infrastructure; at the same time it could also interrupt our business operations indirectly if energy supply is not guaranteed any longer. In Bangladesh, there is a risk of high damage of our electrical equipment in switches, base stations and other site buildings caused by flooding. If critical network infrastructure is damaged by the flooding we will face the risk of interruption of business operations. Likewise, the flooding could also demolish the infrastructure for electricity in Bangladesh. As Telenor is dependent of electricity supply, this could also lead to business interruptions.
Upstream	Relevant, sometimes included	Relevance to Telenor: Climate related upstream risks include risks related to Telenor's network operations through network equipment suppliers and operational service providers and could affect the company's results and business prospects. Example of a specific risk considered: Telenor's network operations are vulnerable to damage or service interruptions. Climate related risks include potential damage to vital infrastructure and utilities through the impact of more extreme weather.
Downstream	Relevant, sometimes included	Relevance to Telenor: Climate related downstream risks may be relevant for Telenor's ability to provide required quality and reliability of its services to its customers. Example of a specific risk considered: : Telenor's network operations are vulnerable to damage or service interruptions. Climate related risks include potential damage to vital infrastructure and utilities through the impact of more extreme weather.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

How our organization makes decisions to mitigate, transfer, accept or control climate-related risks and to capitalize on opportunities:

Since 2008, Telenor Group has established documented processes which consider climate change risks and opportunities as part of our total business risk and opportunity management process.

At Group level:

• The Board of Director assesses risk thoroughly in connection with new investments, and on an ongoing basis in relation to existing investments. The Group Executive Management has implemented a systematic Group-wide enterprise risk management process.

• A dedicated climate organisation – as a part of our Sustainability organisation - focuses on the climate change risks and opportunities. The identification process is performed at regular intervals assessing potential new climate change risks and opportunities. The assessment includes regulatory, physical and reputation risks and opportunities arising from climate change.

At business unit level:

• Climate change related risks and opportunities are integrated part of this business unit management framework and is part of all the annual business strategy update.

• Telenor assesses climate risks at each individual country of operation. Each business unit has to predict how the climate risks will evolve in the future, rate the likelihood that the damage/risk event will happen given their climate change projections and the vulnerability of their assets.

Our process for prioritizing climate-related risks and opportunities:

The climate change risks and opportunity prioritization process is integrated within the Group's annual strategy planning process, and key risks/opportunities highlighted therein by business units are tracked through various Group review processes.

Each business unit is responsible for updating their company related level risks/opportunities on a regular basis – and align this closely with existing business and management processes. Group Strategy aggregates risks/opportunities from the business unit strategy plans, analyses other significant risks/opportunities across the group and presents Telenor's strategic risks/opportunities to the Group Executive Management and ultimately to the Board of Directors.

Example of transition risk:

Changing regulations, significant reductions in renewable energy costs and concerns about energy security will impact global energy markets. Telenor's Asian markets are very different from its European markets, both in the company's carbon footprint and the type of energy that Telenor uses for its network operations. In general, developing countries will have the opportunity to leapfrog into the renewable age, and Telenor has already, in several of its Asian operations, started to replace traditional diesel-based on-site generators with cost-efficient solar/battery renewable energy technology.

In Telenor's Asian operations, the company has, in 2017, continued to convert traditional diesel-based on-site generators to renewable energy with cost-efficient solar/battery technology. By year-end 2017, Telenor Pakistan had installed solar energy

solutions for more than 700 of its base stations and is planning for an additional 250 sites in 2018. Grameenphone in Bangladesh has more than 1200 solar powered base stations in place, and similarly Digi in Malaysia has close to 60 base stations powered by solar solutions. Also in Myanmar, Telenor has started scaling up with solar/battery technology for more than 80 base stations in 2017 and rollout of solar/battery technology to another 1400 base stations in 2018.

Example of physical risk:

At Telenor, we have conducted a Climate Impact Risk Analysis for countries of Telenor's operations. The aim of this analysis was to identify the risks of climate induced damage such as flooding to Telenor's networks in 11 countries where we have large operations. The results from this analysis have been used proactively in planning of network expansion as well as reactively with regard to protecting existing infrastructure. The risk analysis conducted showed increased exposure to flooding as a consequence to rising sea levels in countries close to sea level such as Bangladesh. Telenor therefore reactively made its existing assets in these countries more flooding resilient wherever possible.

Example of opportunity:
Telenor has invested in technology and smart services through the Internet of Things (IoT) that have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. In 2017, Telenor Group passed more than 12 million SIM connected devices globally on its IoT platforms. Telenor Connexion, Telenor's dedicated IoT company, designs and operates global IoT solutions for the global market.

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?
Direct operations

Risk type
Transition risk

Primary climate-related risk driver
Technology: Costs to transition to lower emissions technology

Type of financial impact driver
Technology: Costs to adopt/deploy new practices and processes

Company- specific description
The mobile industry risks continued growth in its total energy consumption and carbon footprint as the mobile operator continue to increase their coverage, acquire more customers and develop more mobile broadband services due to market needs. Telenor's network operations require significant amounts of energy , and most power is supplied on-grid by national power generation companies. In Telenor's Asian operations, the company also relies heavily on diesel used in its on-site generators to power infrastructure offgrid in remote locations or areas of unreliable on-grid power. Climate-related technology risks can imply increased capex and opex costs related to cost efficient energy initiatives such as renewable energy sourcing, network swaps, sourcing of energy-efficient technologies, infrastructure-sharing and energy efficient data centres and buildings.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Medium

Potential financial impact
1000000000

Explanation of financial impact
Telenor's Asian markets are very different from its European markets, both in the company's carbon footprint and the type of energy that Telenor uses for its network operations. In general, developing countries will have the opportunity to leapfrog into the renewable age, and Telenor has already, in several of its Asian operations, started to replace traditional diesel-based on-site generators with cost-efficient solar/battery renewable energy technology. Telenor has already invested in more than 2,000 solar-based base stations in its Asian network operations. Potential cumulative capex in the years to come for Telenor to continue to move from diesel generators to solar based energy production related to its network operations in Asia is estimated to be less than 1 billion NOK.

Management method
Three methods help us managing the risk of tightening international agreements on climate change: 1) Risk avoidance: Telenor's key method for reducing our exposure to climate related financial impacts has been to improving the energy efficiency in all our business units - such as network modernisation and integration of energy requirements in procurement processes. 2) Risk monitoring: Telenor is closely monitoring the policy debate concerning regulatory frameworks – and the different markets/countries commitment to the Paris Agreement - and where each country will need a roadmap towards 2030 for emissions reduction initiatives 3) Risk reduction: To mitigate additional risks arising from increasing emission regulations, Telenor will plan for a scale-up of renewable energy combined with continued focus on energy efficiency initiatives in all of its network operations, resulting in both potential savings in operating expenses and reduced CO2 emissions. One example: Telenor has already invested in more than 2,000 solar-based base stations in its Asian network operations (Pakistan, Bangladesh, Malaysia and Myanmar).

Cost of management
1000000

Comment
We estimate total management costs (including risk monitoring and technology development) associated with climate change related technology risks to be annually less than 1 million NOK in the years towards 2020.

Identifier
Risk 2

Where in the value chain does the risk driver occur?
Direct operations

Risk type
Transition risk

Primary climate-related risk driver
Policy and legal: Increased pricing of GHG emissions

Type of financial impact driver
Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description
The mobile industry may face future tax on direct and indirect emissions. Telenor is heavily dependent on electricity in its network operations; higher electricity prices as a result of increased climate change regulations in the energy sector therefore present an indirect risk to Telenor. In terms of climate-related regulatory risks, the mobile industry may face higher operational cost due to increasing carbon taxes and energy/ fuel taxes as well as higher capital cost due to a required shift towards more energy efficient technology and renewable energy solutions. However, the risk for Telenor in short to medium term is moderate due to low direct carbon emissions per customer from our operations.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Medium-low

Potential financial impact
500000000

Explanation of financial impact
Regulatory risks can imply increased: compliance costs related to company operations, payment of fines/ tariffs and for example involvement in carbon trading schemes. We have evaluated possible carbon costs exposure in relation to increased climate change regulations from 2016 onwards under different carbon price scenarios. Telenor has calculated different scenarios with carbon prices from 100 NOK to 500 NOK per tonne CO2 across the different markets. With our current carbon emissions of 1.1 million tons CO2-e this would lead to annual costs of less than 500 million NOK.

Management method
Three methods help us managing the risk of tightening international agreements on climate change: 1) Risk avoidance: Telenor's key method for reducing our exposure to climate related regulatory risks by improving the energy efficiency in all our business units - such as network modernisation and integration of energy requirements in procurement processes. 2) Risk monitoring: Telenor is closely monitoring the policy debate concerning regulatory frameworks. One example: Telenor is monitoring the policy debate concerning the wider EU 2030 commitment to reduce CO2 emissions by 40% as part of EU's commitment to the Paris Agreement - and where each EU member state will have to follow an emissions reduction pathway. 3) Risk reduction: To mitigate additional risks arising from increasing emission regulations, Telenor is actively engaged in dialogue with policymakers in EU as well as in other parts of the world. One example; Telenor has actively been involved in several industry studies - such as the SMARTer 2030 report that demonstrates how the ICT industry towards year 2030 could abate almost 20% of the global carbon emissions and with a factor close to ten times our industry's own direct emissions. The report was used as an active dialogue tool with world-wide policymakers before and during the Paris COP21 meeting in December 2015

Cost of management
1000000

Comment
We estimate total management costs (including risk monitoring and active engagement) associated with following up climate change related risks to be annually less than 1 million NOK in the years towards 2020.

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Direct operations

Risk type
Physical risk

Primary climate-related risk driver
Chronic: Rising sea levels

Type of financial impact driver
Increased capital costs (e.g., damage to facilities)

Company- specific description
Telenor's operations and infrastructure in Asia are exposed to flooding risks caused rising sea levels. Climate research predicts the sea level to rise because of melting ice and the expansion of water. The rising sea level poses a risk to all countries at very low altitudes, in particular to Bangladesh which is highly threatened by the rising sea level. Flooding is a significant risk as it has the potential to damage buildings, infrastructure and to threaten energy security. How the risk is affecting Telenor: Flooding has the potential to damage our buildings and network infrastructure; at the same time it could also interrupt our business operations indirectly if energy supply is not guaranteed any longer. In Bangladesh, there is a risk of high damage of our electrical equipment in switches, base stations and other site buildings caused by flooding. If critical network infrastructure is damaged by the flooding we will face the risk of interruption of business operations. Likewise, the flooding could also demolish the infrastructure for electricity in Bangladesh. As Telenor is dependent of electricity supply, this could also lead to business interruptions. The financial risk exposure is estimated to be more than 50% of our assets in Bangladesh.

Time horizon
Long-term

Likelihood
More likely than not

Magnitude of impact
Low

Potential financial impact
100000000

Explanation of financial impact
In Bangladesh, there is a risk of high damage of electrical equipment in switches, base stations and other site buildings caused by flooding - calculated that more than 50% of our infrastructure will need early renewal with a likelihood of more than once every 10 years. The resulted financial impacts is estimated to be in the order of 100 million NOK.

Management method
At Telenor, we have conducted a Climate Impact Risk Analysis for countries of Telenor's operations. The aim of this analysis was to identify the risks of climate induced damage such as flooding to Telenor's networks over the years up to 2018 in 11 countries where we have large operations. The results from this analysis are used proactively in planning of network expansion as well as reactively with regard to protecting existing infrastructure. The risk analysis conducted showed increased exposure to flooding as a consequence to rising sea levels in countries close to sea level such as Bangladesh. Telenor therefore reactively made its existing assets in these countries more flooding resilient wherever possible. For example in Bangladesh, Telenor (Grameenphone) operates 6600 base stations (BS) in the country and where 45 % of these BS being located between 1m and 5m above sea level. Most of the equipment rooms in the Base Stations (BS) have been built above the local highest flood level. All the BS sites have batteries with 10 hours capacity as backup, and an additional 37 % have generators with 125 hours of operation with on site fuel stock. All the antenna towers are designed to withstand wind speeds above 118 km/h at maximum loading. With the measures taken we reduced the risk significantly. The residual risk of interruptions to our business activities due to flooding risk over the next 10 years is fairly small.

Cost of management
1000000

Comment
We estimate total management costs (including risk monitoring and active engagement) associated with following up climate change related risks to be annually less than 1 million NOK in the years towards 2020.

C2.4

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

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?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Type of financial impact driver
Increased revenue through demand for lower emissions products and services

Company- specific description
The EU has set itself ambitious energy and climate change objectives for 2020. Smart meters are one of the measures to contribute to achieving these objectives by providing real-time information on energy consumption to end-consumers. It was agreed that EU member countries are required to have smart meters across 80 per cent of their metering infrastructures by 2020. How this opportunity affects Telenor: A fundamental enabler for the Smart Grid is a widely available, secure two-way communications platforms often based on mobile based connectivity (IoT). A range of assets in the possession of the mobile industry are uniquely suited to providing such platform for the Smart Utilities, including coverage, end-to-end security, experience in managing millions of distributed objects and volumes of data, as well as financial strength and stability of the mobile ecosystem. Telenor is well

positioned to take a fair share of these climate change related business opportunities both in EU member countries where we have direct mobile operations, but also in non-European countries through industry partnerships. According to reports published by Berg Insight, smart metering has reached a stage of early maturity with mass-rollouts underway in significant parts of Western Europe. Almost 40 percent of the 281 million electricity customers in EU28+2 had a smart meter at the end of 2017, a share that is set to increase to 70 percent over the coming five years.

Time horizon
Short-term

Likelihood
Likely

Magnitude of impact
Low

Potential financial impact
100000000

Explanation of financial impact
Telenor has significant competence and experience within M2M and Internet-of-Things (IoT), primarily through our global vehicle Telenor Connexion. Our ambition is to strengthen our IoT business, both sustaining a world-leading position within connectivity, and also taking on new exciting vertical industry positions. Telenor Connexion, the dedicated Internet of Things company within Telenor, designs and operates connected business (IoT) solutions or the global market. The company has a strong position internationally within IoT and a unique position in Sweden with eight out of ten subscriptions in the market. In 2017, Telenor Group passed 12 million connected devices globally on its IoT platforms. In 2017, Telenor Group had total revenues more than 1 billion NOK related to network connectivity services (including smart meter services) and we have estimated revenues potentially to increase by 10% over the next few years.

Strategy to realize opportunity
Following methods help us manage these opportunities: Business innovation: Telenor has a global unit that manages Telenor's investments in the digital business space. The unit will seek to build strong positions within a selection of verticals towards 2020, combining these new verticals with the Telenor Group's already existing core services, culture and footprint. We seek opportunities in a selection of digital verticals including Internet-of-Things (IoT). Infrastructure innovation: Telenor also continued to explore and verify solutions for improved customer experience and better efficiency, through joint innovation and strategic collaborations. These included: emerging mobile technologies such as spectrum efficient mechanisms, advanced antenna/ coverage, small cell utilisation, flexible high-capacity backhaul, cloud/ virtualisation, Internet of Things, and 5G preparedness.

Cost to realize opportunity
5000000

Comment
The cost of management in this case are our spendings for innovation and management cost related to developing of industrial partnerships . During 2017, Telenor's research unit continued to provide new knowledge and build competences in developing areas such as customer insight, new technologies, artificial intelligence, data analytics and organisational models. Telenor spent NOK 2.2 billion in 2017 on innovation, of which NOK 0.5 billion were costs related to R&D, Annual management cost for Telenor Group related to relevant industrial partnerships is estimated to around 5 million NOK.

Identifier
Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resilience

Primary climate-related opportunity driver
Other

Type of financial impact driver
Increased revenue through new products and services related to ensuring resiliency

Company- specific description
Extreme weather patterns as a result from climate change signify a major risk to human lives. Flooding, frequent storms or extreme precipitation patterns can cause major damages to infrastructure and hinder people to live and work as they usually do. The opportunity is to provide services for these situations which allow people to continue with their daily lives even though they cannot use demolished infrastructure such as flooded streets or destroyed production sites. With the increased likelihood of interruptions of business operations due to more frequent and more extreme weather patterns, an increasing number of companies is looking for

services that allow their employees to work independently. This leads to an increase in the demand for alternative ICT solutions to support efficient travel and commuting traffic. Telenor is well positioned to offer ICT services that allow people to work from anywhere which makes them less dependent from climate catastrophes.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Low

Potential financial impact
100000000

Explanation of financial impact
To deliver on Telenor Group's ambitions of growth and value creation, we will take the position as our customers' favorite partner in digital life. We will be delivering a broad range of relevant, personalized and engaging digital services. These include connectivity and communications services, selected internet services within for example storage and communication, and selected stand-alone digital verticals such as current digital verticals (such as IoT based services and financial Services), and in other new digital verticals. Telenor's ambition is to take a clear market position in exploring how new technology trends can impact our industry and to develop business opportunities related to smart working and smart living. In 2017, Telenor revenues from these business opportunities are currently around 1 billion NOK and we have estimated revenues potentially to increase by 10% over the next few years.

Strategy to realize opportunity
Industry partnerships: Using ICT-based solutions for teleworking, video conferencing and cloud computing could minimize the impact of many types of natural disasters triggered by climate change. For example, Telenor is actively innovating on this front, exploring business opportunities for resilient out of office working environments were business customers' employees can access important documents from any location through cloud-based solutions. Whether the customer's office building is damaged, shut down for the day or for many weeks, employees can still access documents to keep serving their own clients. Research and innovation collaboration: We create new business opportunities such as mobile financial services and the Internet of Things. Telenor is also exploring new technology trends to predict the impact they can have on the industry, business and the way customers consume the services. Further, Telenor is also exploring how new ecosystems are being established in the telecommunication industry. Telenor's research assesses how technology may drive changes within these eco-systems.

Cost to realize opportunity
5000000

Comment
The cost of management in this case are our spendings for innovation and management cost related to developing of industrial partnerships . During 2017, Telenor's research unit continued to provide new knowledge and build competences in developing areas such as customer insight, new technologies, artificial intelligence, data analytics and organisational models. Telenor spent NOK 2.2 billion in 2017 on innovation, of which NOK 0.5 billion were costs related to R&D. Annual management cost for Telenor Group related to relevant industrial partnerships is estimated to around 5 million NOK.

Identifier
Opp3

Where in the value chain does the opportunity occur?
Customer

Opportunity type
Products and services

Primary climate-related opportunity driver
Development of new products or services through R&D and innovation

Type of financial impact driver
Increased revenue through new solutions to adaptation needs (e.g., insurance risk transfer products and services)

Company- specific description
Both consumers and business customers have increased expectations to companies to operate in a sustainable way. This is more of a business opportunity for Telenor's Nordic operations compared to our operations in Central Eastern Europe and especially in Asia. In our Nordic region but also to some degree for the rest of our European operations, customers expect us to be proactive in our work and that we have solutions that can we offer to help them to reduce their own energy consumption and related GHG emissions How this opportunity affects Telenor: Telenor offers products and services that meet the needs of the changing consumer

behavior due to climate change. Telenor offers both, energy-efficient services and services that allow our customers to reduce their energy consumption and related GHG emissions such as smart meeting, smart working and smart computing. By offering these services we can satisfy the need of consumers that are aware of climate change. Therefore, we can possibly win new clients and make sure the existing client base is satisfied. The SMARTer 2030 report (the study supported by Telenor) has recently been launched with a key message that the ICT industry towards year 2030 could abate almost 20% of the global carbon emissions and with a factor close to ten times our industry's own direct emissions. In SMARTer 2030 report we argue that the scene is set for ICT to be deployed to fully decouple economic growth from carbon intensity and resource use by 2030 and to deliver genuinely sustainable development in a range of sectors and countries across the world. The SMARTer 2030 report has shown that ICT can decouple economic growth from carbon intensity, but the evidence of the past underlines the need for a strong global target regime to keep emissions in check, to incentivize the decarbonization of economic growth and to provide certainty to investors.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Low

Potential financial impact
100000000

Explanation of financial impact
Telenor has significant competence and experience within Internet-of-Things (IoT), primarily through our global vehicle Telenor Connexion as well as in Telenor Norway. Our ambition is to strengthen our IoT business, both sustaining a world-leading position within connectivity, and also taking on new exciting vertical industry positions. Telenor Connexion, the dedicated Internet of Things company within Telenor, designs and operates connected business (IoT) solutions or the global market. The company has a strong position internationally within IoT (Telenor is number 8 in the world) and a unique position in Sweden with eight out of ten subscriptions in the market.). In 2017, Telenor Group passed 12 million connected devices globally on its IoT platforms. In 2017, Telenor had total revenues more than 1 billion NOK related to network connectivity services (including smart meter services) and we have estimated revenues potentially to increase by 10% over the next few years.

Strategy to realize opportunity
Following methods help us manage these opportunities: Business innovation: Telenor has a global unit that manages Telenor's investments in the digital business space. The unit will seek to build strong positions within a selection of verticals towards 2020, combining these new verticals with the Telenor Group's already existing core services, culture and footprint. We seek opportunities in a selection of digital verticals including Internet-of-Things (IoT). Infrastructure innovation: Telenor also continued to explore and verify solutions for improved customer experience and better efficiency, through joint innovation and strategic collaborations. These included: emerging mobile technologies such as spectrum efficient mechanisms, advanced antenna/ coverage, small cell utilisation, flexible high-capacity backhaul, cloud/ virtualisation, Internet of Things, and 5G preparedness.

Cost to realize opportunity
5000000

Comment
The cost of management in this case are our spendings for innovation and management cost related to developing of industrial partnerships . During 2017, Telenor's research unit continued to provide new knowledge and build competences in developing areas such as customer insight, new technologies, artificial intelligence, data analytics and organisational models. Telenor spent NOK 2.2 billion in 2017 on innovation, of which NOK 0.5 billion were costs related to R&D, Annual management cost for Telenor Group related to relevant industrial partnerships is estimated to around 5 million NOK.

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted for some suppliers, facilities, or product lines	The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. In 2017, Telenor secured its position as a leading provider of Internet of Things connectivity in Europe. In 2017, Telenor Group passed more than 12 million SIM connected devices globally on its IoT platforms. Telenor Connexion (Telenor's dedicated IoT company, designs and operates global IoT solutions for the global market) shipped more than 3 million SIMs, and Telenor Norway has taken a leading position within selected a IoT areas.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	In Telenor's Asian network operations, the company with its supply chain has have continued to convert traditional diesel-based on-site generators to renewable energy with cost-efficient solar/battery technology. By year-end 2017, Telenor Pakistan had installed solar energy solutions for more than 700 of its base stations and is planning for an additional 250 sites in 2018. Grameenphone in Bangladesh has more than 1200 solar powered base stations in place, and similarly Digi in Malaysia has close to 60 base stations powered by solar solutions. Also in Myanmar, Telenor has started scaling up with solar/battery technology for more than 80 base stations in 2017 and rollout of solar/battery technology to another 1400 base stations in 2018.
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Telenor's operations and infrastructure in Asia are exposed to flooding risks caused rising sea levels. Climate research predicts the sea level to rise because of melting ice and the expansion of water. The rising sea level poses a risk to all countries at very low altitudes, in particular to Bangladesh which is highly threatened by the rising sea level. At Telenor, we have conducted a Climate Impact Risk Analysis for countries of Telenor's operations. The aim of this analysis was to identify the risks of climate induced damage such as flooding to Telenor's networks over the years up to 2018 in 11 countries where we have large operations. The results from this analysis are used proactively in planning of network expansion as well as reactively with regard to protecting existing infrastructure. In Bangladesh, there is a risk of high damage of electrical equipment in switches, base stations and other site buildings caused by flooding - calculated that more than 50% of our infrastructure will need early renewal with a likelihood of more than once every 10 years. This could result in financial impacts estimated to be in the order of 100 million NOK.
Investment in R&D	Impacted for some suppliers, facilities, or product lines	The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. Telenor continues to engage with the industry organisations – such as GSMA and GeSI – and industry partners to embrace these opportunities. During 2017, Telenor's research unit continued to provide new knowledge and build competences in developing areas such as customer insight, new technologies, artificial intelligence, data analytics and organisational models. Telenor spent NOK 2.2 billion in 2017 on innovation, of which NOK 0.5 billion were costs related to R&D.
Operations	Impacted for some suppliers, facilities, or product lines	Telenor's business units are focusing on costefficient energy initiatives: network swaps, sourcing of energy-efficient technologies, infrastructure-sharing and energy efficient data centres and buildings. Changing regulations, significant reductions in renewable energy costs and concerns about energy security will impact global energy markets. Telenor's Asian markets are very different from its European markets, both in the company's carbon footprint and the type of energy that Telenor uses for its network operations. In general, developing countries will have the opportunity to leapfrog into the renewable age, and Telenor has already, in several of its Asian operations, started to replace traditional diesel-based on-site generators with cost-efficient solar/battery renewable energy technology. Going forward, Telenor will plan for a scale-up of renewable energy combined with continued focus on energy efficiency initiatives in all of its network operations, resulting in both savings in operating expenses and reduced CO2 emissions. This could result in financial impacts estimated to be increased capex over the next years of several hundreds of million NOK.
Other, please specify	Please select	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. In 2017, Telenor secured its position as a leading provider of Internet of Things connectivity in Europe. In 2017, Telenor Group passed more than 12 million SIM connected devices globally on its IoT platforms. Telenor Connexion (Telenor's dedicated IoT company, designs and operates global IoT solutions for the global market) shipped more than 3 million SIMs, and Telenor Norway has taken a leading position within selected a IoT areas. In 2017, Telenor's revenues for the IoT/ mobile connecticty business sector were of more than 1 billion NOK.
Operating costs	Impacted	The mobile industry requires significant amounts of electricity in Telenor's network operations, and most power is supplied on-grid by national power generation companies. In Telenor's Asian operations, the company also relies heavily on diesel used in its on-site generators to power infrastructure offgrid in remote locations or areas of unreliable on-grid power. Telenor's key focus has therefore been to stabilise energy consumption by improving the energy efficiency of its networks, as these represent around 80 per cent of the total energy consumption. The business units are focusing on costefficient energy initiatives: network swaps, sourcing of energy-efficient technologies, infrastructure-sharing and energy efficient data centres and buildings. In 2017, Telenor's direct energy cost were more than 2 billion NOK.
Capital expenditures / capital allocation	Impacted for some suppliers, facilities, or product lines	Telenor's Asian markets are very different from its European markets, both in the company's carbon footprint and the type of energy that Telenor uses for its network operations. In general, developing countries will have the opportunity to leapfrog into the renewable age, and Telenor has already, in several of its Asian operations, started to replace traditional diesel-based on-site generators with cost-efficient solar/battery renewable energy technology. Going forward, Telenor will plan for a scale-up of renewable energy combined with continued focus on energy efficiency initiatives in all of its network operations, resulting in both savings in operating expenses and reduced CO2 emissions. Per year-end 2017, Telenor has invested in cost-efficient solar/battery renewable energy technology in more than 2000 base stations in our Asian operations with a cumulative capex of more than 500 million NOK.
Acquisitions and divestments	Not yet impacted	Telenor has only in a very limited way experienced actual and potential impacts of climate-related risks and opportunities in the organization's decision processes related to acquisitions and divestments. Looking forward, there might be potential impacts from climate-related risks and opportunities.
Access to capital	Not yet impacted	Telenor has only in a very limited way experienced actual and potential impacts of climate-related risks and opportunities in the organization's process to positioning its need for either human or financial capital to increase its business value.
Assets	Not yet impacted	Telenor has not yet experienced actual and potential impacts of climate-related risks and opportunities in the organization's economic benefits or losses from the use or ownership of its assets. Looking forward, there might be potential impacts from climate-related risks and opportunities.
Liabilities	Not yet impacted	Telenor has to a limited degree experienced direct actual impacts of climate-related risks and opportunities related the organization's liabilities to its contracted business partners. Looking forward, there might be potential impacts from climate-related risks and opportunities.
Other	Please select	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

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

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

How climate-related issues are integrated into our business objectives and strategy

i.Influenced by climate-related issues:

Telenor is committed to minimising its environmental impact by its infrastructure based mobile network operations in Asia, Central Eastern Europe and Scandinavia. Telenor's business units operate with the policy of making all reasonable efforts to minimise use of natural resources including energy, water and raw materials. Since 2008, Telenor Group has established documented processes which consider climate change related risks and opportunities as part of our total business environment. All Telenor Group's business units shall adhere to local and internationally recognized environmental and energy efficiency standards, as adhered to by Telenor Group. The business units shall have an updated risk assessment for its operations focusing on extreme weather events related to climate change. All business units shall investigate potential business initiatives and partnerships for offering such eco-efficient solutions.

ii. Linking to an emissions reductions or energy reduction target:

Telenor will risk continued growth in our total energy consumption and carbon footprint as we continue to increase our coverage, acquire more customers and develop more mobile broadband services due to market needs. Our key climate initiatives have therefore been to stabilise our energy consumption by improving the energy efficiency of our network operations, as these represent around 80 per cent of our total energy consumption. In 2008 Telenor announced our strategic climate ambitions on reducing the carbon intensity of our global operations with 40 per cent by 2017, compared to the 2008 level. The carbon intensity is measured by the amount of CO2 emissions per "value added" (expressed as EBITDA + employee costs).

iii. Most substantial business decision:

The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. Most significant business decision last year was probably to continue developing our digital business vertical within IoT.

iv. What aspects of climate change have influenced the strategy:

Aspects of climate change that have influenced the strategy:
1) Climate change is one of the most complex challenges facing people, businesses and governments. Climate related risks include potential damages to vital infrastructure and utilities through the impact of more extreme weather events.
2) At the same time our technology and smart services have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. Telenor engages with the industry and partners to embrace these opportunities.

v. Short-term strategy:

Telenor will risk continued growth in its total energy consumption and carbon footprint as our mobile operations continue to increase its coverage, acquire more customers and develop more mobile broadband services due to market needs. Significant amounts of electricity is required Telenor's network operations – and most of this electricity is supplied on-grid by national power generation companies. In Telenor Group's Asian operations, the company also relies heavily on diesel used in its on-site generators – to power infrastructure off-grid in remote locations or areas of unreliable on-grid power. Telenor Groups's key climate measure has since 2010 been to stabilise the energy consumption in its networks while increasing market footprint, since network operations represent around 90 per cent of Telenor's total CO2 emissions. All business units are mandated to choose cost-efficient energy efficiency initiatives: network swaps, the sourcing of energy-efficient technologies, infrastructure-sharing and more energy efficient data centres and buildings.

vi. Long-term strategy :

Changing regulations, dramatic reductions in renewable energy costs and concerns about energy security will impact global energy

markets. Telenor Group's Asian markets are very different from its European markets – both in the company's carbon footprint and the type of energy that Telenor uses for its network operations. In general, developing countries will have the opportunity to leapfrog into the renewable age, and Telenor Group has already in several of its Asian operations started to convert traditional diesel-based on-site generators into renewable energy

with cost-efficient solar/battery technology. Telenor has already invested in more than 2,000 solar-based base stations in its Asian network operations (Pakistan, Bangladesh, Malaysia and Myanmar). In the way forward, Telenor will need to plan for scale-up of renewable energy combined with continued focus on energy efficiency initiatives in all of its network operations – resulting in both savings in operating expenses and reduced CO2 emissions. Telenor will formulate new strategic climate ambitions for Telenor Group with localised climate roadmaps towards 2030 that are aligned with the overall Paris Climate Agreement.

vii. Gaining strategic advantage;

Telenor Group's long term strategic ambition is to deliver business growth and value creation by becoming our customers' favorite partner in their digital life. As part of this strategy we will be delivering a broad range of relevant digital services – including connectivity and internet based services. Telenor is well positioned within our industry to embrace business opportunities related to ICT sector's role in a low-carbon transition – both alone and in partnerships - with ambition to design and operate connected business (IoT) solutions for the global market. In 2017, Telenor secured its position as a leading provider of Internet of Things connectivity in Europe. In 2017, Telenor Group passed more than 12 million SIM connected devices globally on its IoT platforms.

viii. The influence of Paris Agreement:

Telenor will need to formulate new strategic climate ambitions for Telenor Group with localised climate roadmaps towards 2030 that are aligned with the overall Paris Climate Agreement. Telenor will be aiming to develop an climate roadmap across its business units which can be aligned with the future business strategy processes. These climate roadmap should drive renewable energy ambitions and related priorities at group level and on specific business unit levels. There is a need to have a clear understanding of bottom-up and top-down perspectives in each market in order to drive decision making. A unified approach and templates are needed to collect and structure the right data and insights across each business unit. Relevant conditions per business unit include current energy performance, climate legislations, the nationally intended contributions to the Paris Agreement (INDCs), future infrastructure developments etc.

C3.1g

(C3.1g) Why does your organization not use climate-related scenario analysis to inform your business strategy?

i.Why climate-related scenario analysis is not used to inform your business strategy:

Telenor has been for the last ten years committed to minimising its environmental impact. Telenor's business units operate with the policy of making all reasonable efforts to minimise use of natural resources including energy, water and raw materials. Since 2008, Telenor Group has established documented processes which consider climate change related risks and opportunities as part of our total business environment. All Telenor Group's business units shall adhere to local and internationally recognized environmental and energy efficiency standards, as adhered to by Telenor Group. The business units shall have an updated risk assessment for its operations focusing on extreme weather events related to climate change. All business units shall investigate potential business initiatives and partnerships for offering such eco-efficient solutions.

At Telenor, we have conducted a Climate Impact Risk Analysis for countries of Telenor's operations. The aim of this analysis was to identify the risks of climate induced damage such as flooding to Telenor's networks in all countries where we have large infrastructure based operations. The results from this analysis gave been used proactively in planning of network expansion as well as reactively with regard to protecting existing infrastructure.

The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. Telenor has over recent years engaged with the industry organisations – such as GSMA and GeSI – and also leading research institutions to embrace these opportunities.

The use of scenarios in assessing climate-related issues and their potential financial implications is relatively new and hopefully practices will evolve over time – but Telenor believes such analysis is important for improving the disclosure of climate-related financial information. In the next few years, Telenor sees the need to update its risk and opportunity assessment in a more systematic way. Telenor will look into the resilience of our total organization's strategy, taking into consideration different climate-related scenarios. Telenor will disclose how our strategy might need to change to address potential climate-related risks and opportunities.

Telenor will also need to formulate new strategic climate ambitions for Telenor Group with localised climate roadmaps towards 2030 that are aligned with the overall Paris Climate Agreement. Telenor will be aiming to develop an climate roadmap across its business units which can be aligned with the future business strategy processes. These climate roadmap should drive renewable energy ambitions and related priorities at group level and on specific business unit levels. There is a need to have a clear understanding of bottom-up and top-down perspectives in each market in order to drive decision making. A unified approach and templates are needed to collect and structure the right data and insights across each business unit. Relevant conditions per business unit include current energy performance, climate legislations, the nationally intended contributions to the Paris Agreement (INDCs), future infrastructure developments etc.

ii. Whether you expect it to be in the future

Telenor will in the next few years update its risk and opportunity assessment in a more systematic way. Telenor will look into the resilience of our total organization's strategy, taking into consideration different climate-related scenarios. Telenor will disclose how our strategy might need to change to address potential climate-related risks and opportunities.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?
Both absolute and intensity targets

C4.1a

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

Target reference number
Abs 1

Scope
Scope 1

% emissions in Scope
100

% reduction from base year
24

Base year
2013

Start year
2013

Base year emissions covered by target (metric tons CO2e)
296000

Target year
2017

Is this a science-based target?
No, but we anticipate setting one in the next 2 years

% achieved (emissions)
100

Target status
Expired

Please explain
Telenor will risk continued growth in our absolute energy consumption and carbon footprint as we continue to increase our coverage, acquire more customers and develop more mobile broadband services due to market needs. Our key climate initiatives have therefore been to stabilise our energy consumption by improving the energy efficiency of our network operations, as these represent around 80 per cent of our total energy consumption. For the period 2012-2015, we have successfully been able to stabilize our absolute total energy consumption around 3400 GWh per year – despite increased geographical scope and increased customer base with more mobile broadband services. In 2017, Telenor's total energy consumption was approximately 3200 GWh. Telenor Group had a target for 2017 to cap the Scope 1 emissions at the same level as for year 2013 mainly by reducing the diesel consumption in the off-grid areas and in electricity unstable regions of our Asian operations and energy efficiency measures in the same countries. The total result for Scope 1 emissions in 2017 was estimated to 224 906 tonnes CO2 – which is 24 % lower than for base year 2013. The reduced Scope 1 emissions is combined result successful energy efficiency measures energy efficiency measures in Asian operations and scaling up their transformation to solar energy – but also the divestment of our assets in India in 2017.

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number
Int 1

Scope
Scope 1+2 (location-based)

% emissions in Scope
100

% reduction from baseline year
0

Metric
Other, please specify (Metric tonne CO2 e per "value added")

Base year
2008

Start year
2008

Normalized baseline year emissions covered by target (metric tons CO2e)
749000

Target year
2017

Is this a science-based target?
No, but we anticipate setting one in the next 2 years

% achieved (emissions)
0

Target status
Retired

Please explain
Telenor will risk continued growth in our absolute energy consumption and carbon footprint as we continue to increase our coverage, acquire more customers and develop more mobile broadband services due to market needs. Our key climate initiatives have therefore been to stabilise our energy consumption by improving the energy efficiency of our network operations, as these represent around 80 per cent of our total energy consumption. For the period 2012-2015, we have successfully been able to stabilize our absolute total energy consumption around 3400 GWh per year – despite increased geographical scope and increased customer base with more mobile broadband services. In 2017, Telenor's total energy consumption was approximately 3200 GWh. In 2008 Telenor announced our strategic climate ambitions on reducing the carbon intensity of our global operations with 40 per cent by 2017, compared to the 2008 level. The carbon intensity is measured by the amount of CO2 emissions per "value added" (expressed as EBITDA + employee costs). The Carbon intensity target includes all business units in Telenor Group except for the 2009-acquisition of Uninor in India, the 2013-acquisition in Bulgaria and the 2014-start-up in Myanmar. We have intended to achieve this target mainly through energy efficiency measures and extended use of sustainable energy sources and combined business growth.

% change anticipated in absolute Scope 1+2 emissions
10

% change anticipated in absolute Scope 3 emissions
0

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

C4.3

(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

(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	4	100000
To be implemented*	1	42000
Implementation commenced*	0	0
Implemented*	4	4000
Not to be implemented	0	0

C4.3b

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

Activity type

Low-carbon energy installation

Description of activity

Solar PV

Estimated annual CO2e savings (metric tonnes CO2e)

4000

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)

4000000

Investment required (unit currency – as specified in CC0.4)

40000000

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

We have during 2017 implemented 4 renewable energy projects involving installation of more than 300 new solar powered base stations in Bangladesh, Pakistan, Myanmar and Malaysia. This has resulted in a reduction in consumption of approximately 1.5 million liters of diesel with an estimated reduction in carbon emissions of approx 4,000 tonnes CO2.

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	All Telenor's business units are mandated to choose cost-efficient energy-efficiency initiatives: network swaps, the sourcing of energy-efficient technologies, infrastructure-sharing and more energy-efficient data centres and buildings.
Dedicated budget for other emissions reduction activities	Several of Telenor's Asian operations has for a few years started to replace traditional diesel-based on-site generators with cost-efficient solar/battery renewable energy technology.
Dedicated budget for low-carbon product R&D	The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. Telenor Connexion, Telenor's dedicated IoT company, designs and operates global IoT solutions for the global market. By year-end 2017, Telenor Group passed more than 12 million SIM connected devices globally on its IoT platforms. Telenor Connexion, Telenor's dedicated IoT company, designs and operates global IoT solutions for the global market.

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

The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. In 2017, Telenor secured its position as a leading provider of Internet of Things connectivity in Europe. In 2017, Telenor Group passed more than 12 million SIM connected devices globally on its IoT platforms. Telenor Connexion (Telenor's dedicated IoT company, designs and operates global IoT solutions for the global market) shipped more than 3 million SIMs, and Telenor Norway has taken a leading position within selected a IoT areas.

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

Avoided emissions

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

Evaluating the carbon-reducing impacts of ICT

% revenue from low carbon product(s) in the reporting year

1

Comment

The SMARTer 2030 report (co-financed and supported by Telenor) identified a number of sectors where the enabling potential of ICT can deliver significant carbon emissions reduction – up to 20 per cent by 2030 and close to ten times the ICT industry's own direct emissions. This places ICT as one of the key instruments for the achievement of the climate commitments undertaken in Paris and the implementation of related national action plans.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start
January 1 2008

Base year end
December 31 2008

Base year emissions (metric tons CO2e)
160000

Comment

Scope 2 (location-based)

Base year start
January 1 2008

Base year end
December 31 2008

Base year emissions (metric tons CO2e)
572000

Comment

Scope 2 (market-based)

Base year start
January 1 2008

Base year end
December 31 2008

Base year emissions (metric tons CO2e)
572000

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

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

Row 1

Gross global Scope 1 emissions (metric tons CO2e)
224906

End-year of reporting period
<Not Applicable>

Comment
Scope 1 emissions from Networks: 187 001 metric tonnes CO2e. Scope 1 emissions from Buildings: 6002 metric tonnes CO2e. Scope 1 emissions from Transport: 31 902 metric tonnes CO2e. Total Scope 1 emissions: 224 906 metric tonnes CO2e

Row 2

Gross global Scope 1 emissions (metric tons CO2e)

End-year of reporting period

Comment

Row 3

Gross global Scope 1 emissions (metric tons CO2e)

End-year of reporting period

Comment

Row 4

Gross global Scope 1 emissions (metric tons CO2e)

End-year of reporting period

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?

Row 1

Scope 2, location-based
818899

Scope 2, market-based (if applicable)
1008203

End-year of reporting period
<Not Applicable>

Comment
Location based data: Scope 2 emissions from Networks: 793 536 metric tonnes CO2e. Scope 2 emissions from Buildings: 25 364 metric tonnes CO2e. Scope 2 emissions from Transport: 0 metric tonnes CO2e. Total Scope 2 location-based emissions: 818 899 metric tonnes CO2e. Market based data: Scope 2 emissions from Networks: 959 878 metric tonnes CO2e. Scope 2 emissions from Buildings: 48 325 metric tonnes CO2e. Scope 2 emissions from Transport: 0 metric tonnes CO2e. Total Scope 2 market based emissions: 1 008 203 metric tonnes CO2e.

Row 2

Scope 2, location-based

Scope 2, market-based (if applicable)

End-year of reporting period

Comment

Row 3

Scope 2, location-based

Scope 2, market-based (if applicable)

End-year of reporting period

Comment

Row 4

Scope 2, location-based

Scope 2, market-based (if applicable)

End-year of reporting period

Comment

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 Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

Capital goods

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

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

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Metric tonnes CO2e
10946

Emissions calculation methodology
Includes downstream transportation and distribution. Road transportation; mainly involving vehicles used for maintenance and support services. Fuel-based method; which involves fuels consumed by these vehicles owned or long-term leased by Telenor and applying the appropriate fuel emission factors for the different kinds of fuel used; motor gasoline, diesel, LPG etc.

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

Explanation

Waste generated in operations

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

Business travel

Evaluation status
Relevant, calculated

Metric tonnes CO2e
10538

Emissions calculation methodology
Scope: Only business flights were accounted for. Methodology: Distance-based-method, using the following conversion factors for CO2 emissions: 0.12 kg CO2e per passenger kilometer.

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

Explanation

Employee commuting

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
Any upstream leased assets are already included in our scope 1 or scope 2 inventory.

Downstream transportation and distribution

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
Emissions from downstream transportation and distribution are already included in upstream transportation and distribution.

Processing of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
It does not contribute significantly to Telenor’s anticipated scope 3 emissions, since Telenor in general has limited processing of sold intermediate products by manufacturers subsequent to sale.

Use of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
It does not contribute significantly to Telenor’s anticipated scope 3 emissions, since Telenor in general has limited processing of sold intermediate products by manufacturers subsequent to sale.

End of life treatment of sold products

Evaluation status
Relevant, calculated

Metric tonnes CO2e
168

Emissions calculation methodology
The figure does not represent the entire scope of all our sold products yet. In 2017, 168,000 customer mobile phones and batteries were collected by Telenor for recycling or reuse. Calculation methodology: Using conversion factor of 1 kg CO2e per mobile phone/battery for scope 3 emissions related to "End of life treatment”.

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

Explanation

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
It does not contribute significantly to Telenor’s anticipated scope 3 emissions, since Telenor in general has limited operation of assets that are leased to other business entities.

Franchises

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
Any franchise is included in a our scope 1 or scope 2 Inventory.

Investments

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
It does not contribute significantly to Telenor’s anticipated scope 3 emissions since equity investments in subsidiaries (more than 50 percent ownership) are included in Telenor's scope 1 or scope 2 inventory.

Other (upstream)

Evaluation status
Not evaluated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

Other (downstream)

Evaluation status
Not evaluated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?
No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.00000836

Metric numerator (Gross global combined Scope 1 and 2 emissions)
1043805

Metric denominator
unit total revenue

Metric denominator: Unit total
124800000000

Scope 2 figure used
Location-based

% change from previous year
17

Direction of change
Decreased

Reason for change
The intensity figure for Scope 1 and 2 emissions per total revenue decreased with 17 % from 2016 to 2017 due to the combined fact that total revenues decreased by 5 % (from 131.4 billion NOK in 2016 to 124.8 billion NOK in 2017) as well as the Scope 1 and 2 emissions decreased by 22 % from 1.331 million tonnes CO2 in 2016 to 1.044 million tonnes CO2 in 2016 due to the combined reasons of divestments (Telenor sold all its assets and operations in India in 2017 to Bharti Airtel Limited), change in output (data traffic volume doubled from 2016) as well as energy efficiency measures (sourcing of energy-efficient technologies and increased use of infrastructure-sharing).

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?
No

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Norway	8146
Sweden	356
Denmark	778
Serbia	1671
Montenegro	243
Hungary	1492
Bulgaria	2224
Thailand	8200
Malaysia	24262
Myanmar	103950
Bangladesh	18825
Pakistan	54760

C7.3

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

By activity

C7.3c

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

Activity	Scope 1 emissions (metric tons CO2e)
Network operations	187001
Building operations	6002
Transportation	31902

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Norway	4542	168770	390520	440
Sweden	708	2158	128620	83360
Denmark	13611	31688	57360	0
Serbia	38010	38010	52230	0
Montenegro	4778	4778	10410	0
Hungary	20901	27424	74490	0
Bulgaria	28745	27771	58090	0
Thailand	278549	278549	530630	0
Malaysia	131926	131926	193940	0
Myanmar	18188	18188	68390	0
Bangladesh	161593	161593	285830	0
Pakistan	117348	117348	295700	0

C7.6

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

By activity

C7.6c

(C7.6c) Break down your total gross global Scope 2 emissions by business activity.

Activity	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Network operations	793536	959878
Building operations	25364	48325
Transportation	0	0

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	4000	Decreased	0.3	We have during 2017 completed renewable energy projects involving installation of more than 300 new solar powered base stations in Bangladesh, Pakistan, Myanmar and Malaysia. This has resulted in a reduction in consumption of approximately 1.5 million liters of diesel with an estimated reduction in carbon emissions of approx 4,000 tonnes CO2.
Other emissions reduction activities		<Not Applicable>		
Divestment	307016	Decreased	23	In 2017, Telenor Group sold all its assets and operations in India to Bharti Airtel Limited (Airtel).
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output	24252	Increased	1.8	In 2017, the total data traffic volume in Telenor's mobile network was more than 2600 petabytes - a doubling from 2016.
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

(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?

Location-based

C8. Energy

C8.1

(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

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

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	No
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 MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	1457713	1457713
Consumption of purchased or acquired electricity	<Not Applicable>	83800	2031230	2115030
Consumption of purchased or acquired heat	<Not Applicable>	0	7730	7730
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	0	880	880
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	22570	<Not Applicable>	22570
Total energy consumption	<Not Applicable>	106370	3497553	3604363

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 steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

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

Fuels (excluding feedstocks)
Diesel

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
1419924

MWh fuel consumed for the self-generation of electricity
1300715

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Natural Gas

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
30112

MWh fuel consumed for the self-generation of electricity
0

MWh fuel consumed for self-generation of heat
21094

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Motor Gasoline

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
45608

MWh fuel consumed for the self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Biogasoline

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
4778

MWh fuel consumed for the self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Biodiesel

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
3679

MWh fuel consumed for the self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Biodiesel

Emission factor
1430

Unit
kg CO2e per liter

Emission factor source
Malaysia market data

Comment

Biogasoline

Emission factor
2150

Unit
kg CO2e per liter

Emission factor source
Thailand market data

Comment

Diesel

Emission factor
2583.9

Unit
kg CO2e per liter

Emission factor source
Defra (The UK Department for Environment, Food & Rural Affairs)

Comment

Motor Gasoline

Emission factor
2194.4

Unit
kg CO2e per liter

Emission factor source
Defra (The UK Department for Environment, Food & Rural Affairs)

Comment

Natural Gas

Emission factor
2.0332

Unit
kg CO2e per m3

Emission factor source
Defra (The UK Department for Environment, Food & Rural Affairs)

Comment

C8.2e

(C8.2e) 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	22570	22570	22570	22570
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2f

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

Basis for applying a low-carbon emission factor
Energy attribute certificates, Guarantees of Origin

Low-carbon technology type
Hydropower

MWh consumed associated with low-carbon electricity, heat, steam or cooling
83800

Emission factor (in units of metric tons CO2e per MWh)
0

Comment

C9. Additional metrics

C9.1

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

C10. Verification

C10.1

(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

C10.1a

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

Scope
Scope 1

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
CDP-Telenor _verification statement_2018_from DNV_GL.pdf

Page/ section reference
Three pages verification letter of limited third-party verification by DNV GL Business Assurance Norway AS commissioned by Telenor ASA.

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

Scope
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
CDP-Telenor _verification statement_2018_from DNV_GL.pdf

Page/ section reference
Three pages verification letter of limited third-party verification by DNV GL Business Assurance Norway AS commissioned by Telenor ASA.

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

Scope
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
CDP-Telenor _verification statement_2018_from DNV_GL.pdf

Page/ section reference
Three pages verification letter of limited third-party verification by DNV GL Business Assurance Norway AS commissioned by Telenor ASA.

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.1b

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

Scope
Scope 3- at least one applicable category

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Attach the statement
CDP-Telenor _verification statement_2018_from DNV_GL.pdf

Page/section reference
Three pages verification letter of limited third-party verification by DNV GL Business Assurance Norway AS commissioned by Telenor ASA.

Relevant standard
ISO14064-3

C10.2

(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?
No, we are waiting for more mature verification standards and/or processes

C11. Carbon pricing

C11.1

(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

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?
No

C11.3

(C11.3) Does your organization use an internal price on carbon?
No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?
Yes, our suppliers
Yes, our customers
Yes, other partners in the value chain

C12.1a

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

Type of engagement
Compliance & onboarding

Details of engagement
Climate change is integrated into supplier evaluation processes

% of suppliers by number
2

% total procurement spend (direct and indirect)
80

% Scope 3 emissions as reported in C6.5
0

Rationale for the coverage of your engagement
Our sourcing processes uses sustainability criteria to reduce our supply chain carbon footprint through selection of suppliers with more energy efficient products.

Impact of engagement, including measures of success
During 2017, in 203 of 328 signed contracts with contract value larger than 1.5 million NOK (250,000 USD) a specified set of sustainability criteria have been used during the sourcing process. This scale of engagement involves roughly 200 of our suppliers and reflects about 80 % of our total spend. Our sustainability criteria checklist (with a main focus on energy efficiency) requests the sourcing team to consider involving local environment experts in the procurement process as well as to check out possible suppliers for issues relating to their sustainability, such as their environmental management system, energy efficiency, waste management and hazardous substances.

Comment

C12.1b

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

Type of engagement
Collaboration & innovation

Details of engagement
Please select

Size of engagement
10

% Scope 3 emissions as reported in C6.5
1

Please explain the rationale for selecting this group of customers and scope of engagement
The growing demand for ICT products and mobile devices, and their increasingly short lifespans, has resulted in e-waste becoming a significant concern and risk for the ICT industry. The ICT industry has a growing focus on circular economy and Telenor has mobile handset recycling initiatives as part of its climate-related engagement strategy with its customers.

Impact of engagement, including measures of success
Mobile handset recycling initiatives have been ongoing for several years in nine of our business units: Telenor Hungary, Telenor Serbia, Telenor Montenegro, Digi in Malaysia, dtac in Thailand, Telenor Sweden, Telenor Denmark, Telenor Norway and Telenor Bulgaria, and in 2017 Grameenphone also started their mobile recycling initiative. Across Telenor, a total of more than 168,000 mobile handsets and mobile batteries were collected and recycled in 2017.

C12.1c

(C12.1c) Give details of your climate-related engagement strategy with other partners in the value chain.

The ICT industry's technology and smart services through the Internet of Things (IoT) have the potential to cut global carbon emissions, reduce resource intensity, stimulate economic growth and deliver substantial social benefits. Telenor continues to engage with the industry organisations and also leading research institutions to embrace these opportunities.

In 2017, Telenor continued to build relationships with leading research institutions in Norway and internationally. In collaboration with the Norwegian University of Science and Technology (NTNU), the Telenor-NTNU AI-Lab within Artificial Intelligence (AI) and Big Data was opened. Telenor rolled out an IoT pilot network in three cities in Norway, and launched the Start IoT offering for entrepreneurs, start-ups and students.

Telenor has contributed with several studies to prepare for tomorrow's communication market. Scientists have worked on how AI, machine learning and advanced analytics can be used in improving core telco operations and services, including mobility data for new digital services. The future business models, competitive landscape and business environment have been studied, also including long term trends that have implications for Telenor's business.

C12.3

(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?
Direct engagement with policy makers
Trade associations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Carbon tax	Support	Engaged with policymakers on various levels to communicate that a clear and transparent price on carbon emissions is at the core of a cost-effective and pro-business policy framework for climate change.	Our proposed solution is that policy-makers should make carbon pricing a central part of national policy responses by working towards the long term objective of a carbon price throughout the global economy and setting sufficient ambition through internationally agreed targets to drive change at a pace commensurate with the 2°C goal as agreed upon in Paris in December 2015.

C12.3b

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

Yes

C12.3c

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

Trade association
The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with almost 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors.

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
The GSMA has developed whitepapers that demonstrates how the mobile industry plans to lower its greenhouse gas emissions per connection, and the key role that mobile communications can play in lowering emissions in other sectors and industries. It also makes specific policy recommendations for governments and the United Nations Climate Change Conferences. The GSMA states that ICT can play a major role in helping governments address complex challenges such as achieving sustainable economic growth, combating climate change, improving the delivery of healthcare and providing widespread access to broadband. Realising the full potential of mobile communications to help meet societal and economic challenges requires governments and many different industries to work together, engaging in a constructive and continuous dialogue.

How have you, or are you attempting to, influence the position?
Mr. Sigve Brekke is board member of the GSMA. He has been President and CEO of Telenor Group since August 2015. Telenor representatives are participating in different committees and working Groups in GSMA.Through these individuals, Telenor actively engages in the climate change positioning process of the GSMA.

Trade association
The Global e-Sustainability Initiative (GeSI) is a leading source of impartial information, resources and best practices for achieving integrated social and environmental sustainability through ICT. The GeSI fosters collaborative and innovative approaches to sustainability and supports member initiatives in both developed and developing nations to quickly and effectively respond to issues such as climate change, energy efficiency, e-waste management and resource efficiency, responsible supply chain practices and human rights

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
GeSi encourages governments to include ICTs and related technologies as key elements of their national climate change policies, across all industry sectors. By bolstering collaboration on these main objectives, GeSI seeks to synergize the messages being expressed by actors in the ICT field; the message that ICTs can enable low-carbon economies, and that 21st century governments, regulators and businesses cannot afford to exclude ICTs from policy or business initiatives to green our global economy.

How have you, or are you attempting to, influence the position?
Telenor Group is an active members of GeSI and Telenor representatives both participate in specific climate change related working groups as well as influence the long term strategic processes in GeSI's including long term vision and which climate change related issues should be prioritized.

C12.3f

(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?

- Direct and indirect activities across Telenor Group that influence policy on climate change are centrally coordinated and managed by Group Sustainability.
- The Group's Climate Change director is responsible for coordinating engagement activities around climate change across business units and geographies to ensure that we have a common approach that is consistent with Telenor Group's strategy on climate change.

C12.4

(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 voluntary sustainability report

Status
Complete

Attach the document
CDP-Telenor _verification statement_2018_from DNV_GL.pdf
Telenor-Sustainability-Report-2017.pdf

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures

Publication
In voluntary communications

Status
Complete

Attach the document
Telenor-GRI-Sustainability-Standards-Report-2017.pdf

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures

Publication
In mainstream reports

Status
Complete

Attach the document
Telenor Group Annual-Report-2017.pdf

Content elements
Governance
Strategy

Publication
In voluntary communications

Status
Complete

Attach the document
Telenor-CDP-Programme-Response-Climate-Change-2017.pdf

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets

C14. Signoff

C-FI

(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.

By year-end 2017, Telenor Group had 178 million mobile customers in 12 markets across Scandinavia, Central Eastern Europe and Asia. We hold #1 or #2 positions in most of our markets.

Majority ownership of all core assets enables strong governance and global scale benefits. We are committed to responsible business conduct and driven by the ambition of empowering

societies. Connectivity has been Telenor's domain for more than 160 years, and our purpose is to connect our customers to what matters most.

This CDP report for 2017 does not include performance data from our Indian operations. In 2017, Telenor announced that it entered into an agreement to sell its assets in India and since then Telenor India has been treated as an asset held for sale and discontinued operations in Telenor's financial and non-financial reporting for 2017.

In 2018, Telenor announced that it entered into an agreement to sell its assets in Central and Eastern Europe to PPF Group. Following regulatory approvals the transaction was completed by

end of July 2018. The transaction includes Telenor's wholly-owned mobile operations in Hungary, Bulgaria, Montenegro and Serbia.

This climate related report submitted to CDP contains statements regarding the future in connection with the Telenor Group's outlook, strategies and objectives. All statements regarding the future are subject to inherent risks and uncertainties and many factors can lead to developments deviating substantially from what has been expressed or implied in such statements.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	President and CEO of Telenor Group	Chief Executive Officer (CEO)

SC. Supply chain module

SC0.0