

# Greenhouse Gas Emissions Report FY2020



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# 1. Introduction

## 1.1. Objectives and principles

The voluntary Greenhouse Gas (GHG) Emissions Report describes the emissions and details the verification of the inventory of greenhouse gas (GHG) for Siemens Gamesa Renewable Energy S.A., hereinafter referred to as “SGRE”, “Siemens Gamesa” or “the Company”.

The company publishes this report in order to transparently disclose to its stakeholders its GHG emissions in accordance with the commitments made in the Company’s environmental policy and strategy. Further, the report supports in measuring, monitoring and managing the environmental performance of SGRE.

The information contained in this report discloses the inventory of GHGs and associated emissions during fiscal year 2020, October 1, 2019 to September 30, 2020. The report covers all countries where commercial activities are performed under the scope of SGRE.

The GHG emissions report has been performed in accordance to the requirements described in ISO 14064-1:2018 “Greenhouse gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals”. It includes all required information, except those details that the standard does not consider mandatory and has not been considered relevant following the principle of relevance.

This report is carried out in accordance with the GHG Accounting and Reporting Principles found within the GHG Protocol Corporate Accounting and Reporting Standard.

This is the second consecutive year that Siemens Gamesa publishes a GHG report that includes the three scopes. The report presents the targets certified by the Science Based Targets initiative (SBTi) to reduce Scope 1 and 2 emissions by 2025 that are aligned on the path to a complete decarbonization by 2050. This report also includes an overview of the direct actions performed based on internal targets and strategies to manage and reduce GHG emissions. As Corporate Head of Quality Management, Health, Safety and Environment, Mr. Gregorio Francisco Acero Alvarez is the person responsible for Siemens Gamesa’s GHG report.

This report is subject to external review by the accredited verifier, TÜV Rheinland.

As a result of the verification process in accordance with procedure 6-PS2 .670.00 TÜV Rheinland states that:

It is considered that the Report of SIEMENS GAMESA RENEWABLE ENERGY GREENHOUSE GAS EMISSIONS REPORT FISCAL YEAR 2020, of (05/oct/2020) ratified by the Management of the organization is substantially correct and corresponds to a faithful representation of the emissions of the activities for the scope defined by the company; in conformity requirements of standard ISO 14064-1:2018 for a reasonable level of assurance.

Gregorio Francisco Acero Alvarez  
Head of Corporate QM&HSE  
Siemens Gamesa Renewable  
Energy

Andoni Mur Herrero  
Senior auditor TÜVRheinland

# 2. Organizational description

Siemens Gamesa Renewable Energy S. A. was created in April 2017, with the merger of Gamesa Corporación Tecnológica S. A. and Siemens Wind Power A/S. The company designs and manufactures wind turbines and provides onshore and offshore wind services.

Siemens Gamesa is a leading supplier of wind power solutions to customers all over the globe. It is committed to providing innovative and effective solutions for the energy challenges of tomorrow. Siemens Gamesa is thus leading the way forward in the renewable energy sector by providing cleaner, more reliable and affordable as well as integrated renewable technologies and services.

The company's scale, global reach and proven track record ensures that it will continue to play a central role in shaping the energy landscape of the future. As key player and innovative pioneer in the renewable energy sector, the Company has installed products and technology in more than 90 countries, with a total capacity base of over 106 GW and 26,114 employees.

## Onshore wind power

90GW installed since 1979

## Offshore wind power

16GW installed since 1991. The most experienced offshore wind company

## Service

75GW maintained in more than 65 countries worldwide

### Key facts as of September 30, 2020



**+106 GW**

Globally installed



**+26,114**

Employees



**281 MTCO<sub>2</sub>**

Annual GHG savings to customers



**90 GW installed**

Onshore



**16 GW installed**

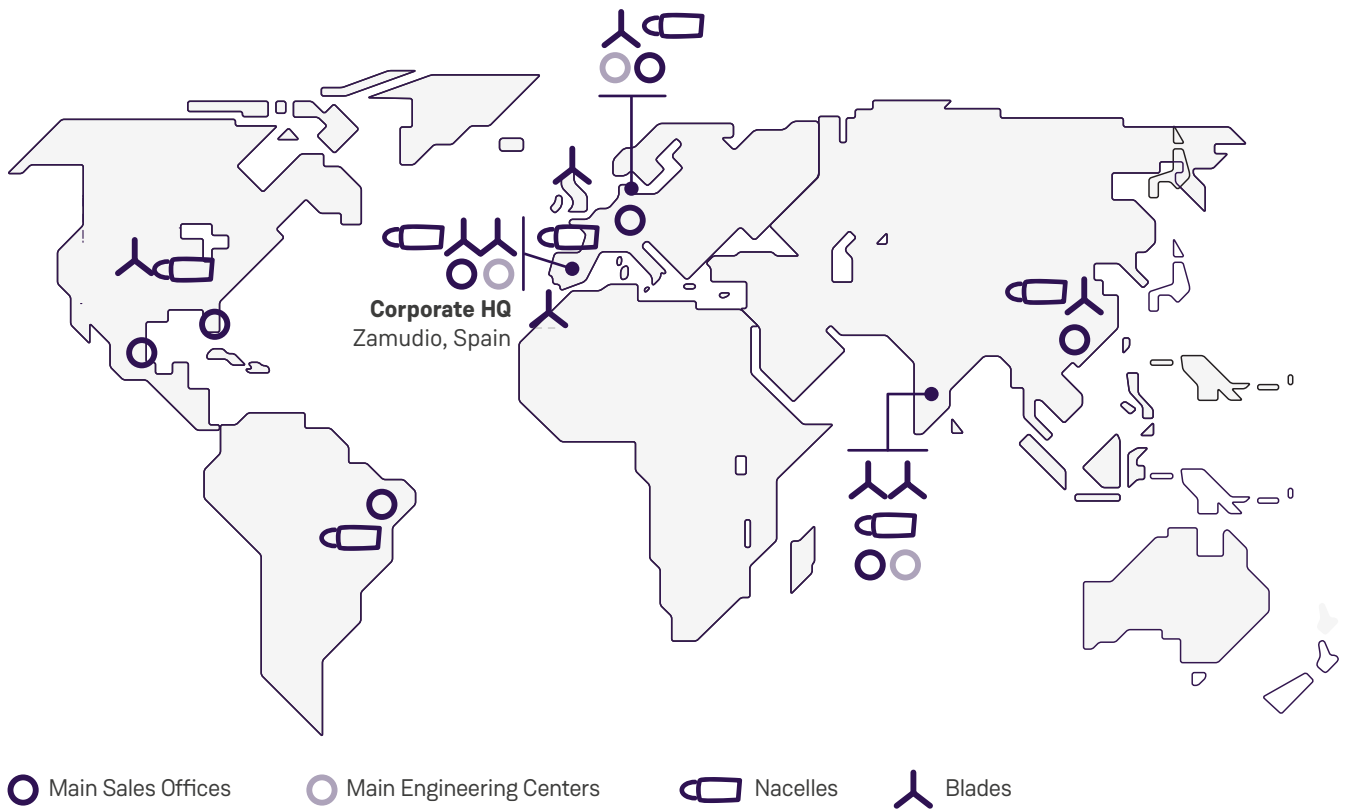
Offshore



**75 GW maintained**

Services

Siemens Gamesa global footprint



## 2.1 Policies, strategies and collaborations

Siemens Gamesa strives to create as much value as possible for customers and investors that have tied their interests with those of the Company.

The company's commitment to its shareholders and the financial community is to provide transparent, accurate and comprehensive information that adequately reflects its current situation. The main tools used to engage with this stakeholder group include direct contact via the Investor Relations and Shareholders Office, as well as the Annual General Meeting.

Siemens Gamesa's commitment to sustainability is widely recognized in several significant ratings and rankings, including the Dow Jones Sustainability Index, Carbon Disclosure Project (CDP), EcoVadis, Financial Times Stock Exchange (FTSE4Good), and Ethibel Excellence Europe Index, among others.

The Company is also featured in rankings that are more specialized in the renewable energy, climate change fields, and decarbonizations such as the Cleantech Index, the Global Challenge Index (GCX), The Global Compact, the Clean200 list, the Paris Pledge for Action, Caring for Climate, The Science Based Targets Initiative, and the S&P Global Clean Energy Index which all showcase the Company's commitments to sustainability.

The SGRE HSE Policy provides clear direction and specific objectives with regards to Health, Safety and Environment (HSE). It combines six strategic HSE elements and applies globally to all Siemens Gamesa activities, regions and locations and is mandatory for all employees working for Siemens Gamesa, on its behalf or under its authority.



### CREATE VALUE FOR

Customers and Investors



### MISSION

We make real what matters – Clean energy for generations to come



### VISION

Be the global leader in the renewable energy industry driving the transition towards a sustainable world



### SUSTAINABILITY INDICES

DJSI, CDP, SBTi, EcoVadis, FTSE4Good, Global Challenges Index, Ethibel Excellence Europe Index

### Climate Strategy

Siemens Gamesa recognizes that climate change is a global issue requiring urgent and collective action by governments, businesses and citizens alike. As a provider of clean affordable energy, our scale and global reach reinforces the central role we have in shaping the future's energy landscape. We are a member of multiple global communities who share our commitment to climate protection and decarbonization. For example, the Paris Pledge for Action, Caring for Climate and The Science Based Targets Initiative.

Siemens Gamesa climate change strategy covers the full scope of Siemens Gamesa's operations e.g. design and manufacture, pre-assembly and commissioning, operation and maintenance. We are committed to action and we will continue making important contributions to the global economy's decarbonization in terms of the products and services we develop, the ways in which we operate and the partnerships we engage in with policymakers, industry associations and business partners to address climate change collectively.



### Climate Change Policy

Aware that climate change is a fundamental threat to markets and sustainable development, SGRE has adopted a Climate Change Policy, which applies company wide.

The policy enforces SGRE's intent to continue developing renewable energy technologies and promoting their uptake to achieve a global low-carbon energy generation model that not only reduces environmental impacts but also ensures a sustainable future for generations to come.

This policy was drawn up to contribute to Principle 4 of the Corporate Social Responsibility Policy:

**“Contribute to sustainable development by reducing the environmental impact of Siemens Gamesa's activities and generating new solutions through innovation”.**

This policy was revised and endorsed by the Board of Directors on September 25, 2019.

The company has made undertakings to several business initiatives aimed at assessing its climate related risks and opportunities, mapping and reducing the impacts associated to its emission sources, and voluntarily committing to climate protection and decarbonization initiatives such as the Science Based Targets Initiative, American Business Act on Climate Pledge or the Paris Pledge for Action. Furthermore, the Company has announced that it became carbon neutral in late 2019 which is a major step closer towards the long-term target of net-zero CO<sub>2</sub> emissions by 2050.

### Net-Zero carbon strategy

In 2018 Siemens Gamesa pledged to becoming carbon neutral by 2025. At the end of 2019, 5 years ahead of schedule, Siemens Gamesa became carbon neutral. This achievement is a major milestone and was realized by a combination of reducing and/or offsetting the CO<sub>2</sub> generated directly or indirectly by the company.

In this fiscal year, Siemens Gamesa expanded its ambitions and incorporated a long- term target of achieving net-zero emissions by 2050. Siemens Gamesa will engage more with our key suppliers to encourage them to reduce their emissions affecting the products and services they supply to Siemens Gamesa.



Commitment to become  
**Net-Zero Carbon by 2050**

The global roadmap for meeting this commitment involves the following emission reduction levers:

- Energy reductions and efficiency measures in our operations.
- Electricity supply from renewable energy-based sources  
Green mobility measures to reduce fleet emissions
- Offset of non-avoided emissions through compensation projects
- Employee awareness campaigns and idea management
- Engagement of supplier across the value chain

### Science Based Targets

The Science Based Targets Initiative (SBTi) is an initiative between the Carbon Disclosure Project, the United Nations Global Compact, World Resources Institute, the World Wildlife Fund for Nature and the We Mean Business Coalition. The SBTi encourages companies to set carbon emissions reduction targets at a level necessary to meet the 1.5/2°C compared with preindustrial temperatures set in the Paris Climate Agreement.

Siemens Gamesa committed to the SBTi as the first renewable energy manufacturer in September 2018. In early 2020, the SBTi verified that Siemens Gamesa's emission reduction strategy is aligned with what climate science says is required to meet the 1.5°C trajectory. The company joins a group of 430 other global organizations who have had their targets approved by the SBTi, where only about 150 have targets consistent with meeting the most ambitious 1.5°C scenario.



**Targets verified**  
by the SBTi in August 2020



Siemens Gamesa has set the following targets for the next five years towards 2025:

- Reduce scope 1 and scope 2 greenhouse gas emissions by 70% per MW installed (compared to 2017)
- Increase the annual sourcing of renewable electricity to 100% (up from 58% in 2017)
- 30% of Siemens Gamesa's suppliers by spend covering purchased goods and services and transportation and distribution will have science-based targets by 2025



**70%**

reduction of scope 1 and scope 2 greenhouse gas emissions per MW installed by 2025 (compared to 2017)



**100%**

of annual electricity sourcing to be renewable by 2025 (up from 58% in 2017)



**30%**

(minimum) of Siemens Gamesa's suppliers to have science-based targets by 2025

### Strategic focus for our Scope 3 emissions

The management of sustainability risks, such as the scope 3 emission reduction, has become key point in the supply chain strategy of Siemens Gamesa.

In line with the verified Siemens Gamesa targets of the Science Based Targets initiative (SBTi) 30% of Siemens Gamesa's purchasing volume (PVO) shall have science-based targets until 2025, covering the categories of purchased goods and services as well as transportation and distribution.

Therefore, in order to achieve this target, Siemens Gamesa is preparing collaborative measures with selected tier 1 suppliers in order to develop a global downstream supply chain strategy and goal setting. The global end-to-end strategy with the selected tier 1 suppliers, will derive following measure plan that will be developed in detail:

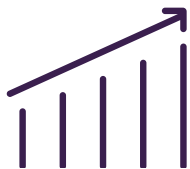
- Understand focus areas and increase the awareness and transparency in the supply chain.
- Specific target settings for tier 1 suppliers as well as reward suppliers with clear commitments to SBTi emission reduction.
- Develop suppliers to increase the overall maturity downstream supply chain and in the industry.

Figure 1 Siemens Gamesa SBT verified

## 2.2 Business goals

The business goals of the GHG report are to:

- Understand and track GHG emissions produced by Siemens Gamesa in an accurate, consistent and transparent way to understand the Company's environmental impacts. This report has been performed in accordance with the GHG Protocol Corporate Accounting and Reporting Standard and the ISO 14064-1:2018.
- Identify cost effective reduction opportunities and early voluntary actions.
- Report progress against the already established GHG targets, that are certified by the Science Based Targets initiative (SBTi) in order to achieve measurable reductions in Siemens Gamesa's environmental impact.
- Publicly disclose this information in a transparent and verified manner and voluntarily participate in GHG reduction programs and certifications.



Analyse  
GH impacts



Set measurable  
targets



Identify reduction  
opportunities



Public disclosure  
& voluntary  
participation



# 3. Inventory boundaries

## 3.1. Organizational boundaries

In order to define the boundaries of the organization the operational control approach is selected, since it best represents the organization's activities with respect to the work centres performing operational control of the activity and it is the approach that allows greater potential for reducing GHG emissions.

A total of 190 Siemens Gamesa locations are considered for this GHG emissions report. These locations were selected using an internal threshold analysis based on energy consumption, where locations with a consumption of more than 2000 GJ per year are included. The table shows number of locations and type per region included.

Business Type	Region/Number of Sites							Total
	APAC	BRAZIL	INDIA	LATAM	NAM	NEME	SE&A	
Construction site	1	1	1	1	1	2	1	8
Distribution center						1		1
Office	1	1	2	2	3	4	3	16
Pre-assembly						2		2
Production Blades	1		2		1	3	6	13
Production Electrical/Gearbox							9	9
Production Nacelle/Hub/Generator	1	1	3		1	2	1	9
Service Wind Farms			103					103
Substations			10					10
Training location					1	1		2
Warehouse			6	1	3	2	4	16
Work Shop							1	1
								190

## 3.2. Optional boundaries

Siemens Gamesa has since fiscal year 2017 reported its direct emissions (Scope 1) from sources it owns or controls and indirect emissions (Scope 2) resulting from the generation of purchased electricity, heat, or steam in its annual non-financial report well as to those ESG indices requiring such information.

This report will account and report the six greenhouse gases covered by the Kyoto Protocol and in accordance to ISO 14064-1:2018.

Business Type	
Carbon Dioxide	CO <sub>2</sub>
Methane	CH <sub>4</sub>
Nitrous Oxide	N <sub>2</sub> O
Sulphur Hexafluoride	SF <sub>6</sub>
Perfluorocarbons	PFCs
Hydrofluorocarbons	HFCs

In addition, this report will account and report the three scopes of GHG emissions separately in accordance with the requirements of ISO 14064-1:2018 and the GHG Protocol. If a direct emission source is excluded, it may be justified in accordance with the principles expressed in the total coverage of ISO 14064-1:2018.

- GHG direct emissions (Scope 1) – Direct emissions that occur from sources that are owned or controlled by the Company.
- GHG indirect emissions (Scope 2) – Indirect emissions from the generation of purchased electricity consumed by the Company as well as district heating.
- Other GHG indirect emissions (Scope 3) – Indirect emissions that are a consequence of the activities of the Company but occur from sources not owned or controlled by the Company.

The GHG Protocol splits scope 3 emissions in 15 distinct categories that occur in the company's value chain. It is the intention of SGRE to report scope 3 emission categories as reliable and transparent data becomes available and in future reports in accordance with the verified science-based target. The following Scope 3 emissions from both upstream and downstream sources were accounted for and included in this report:

Scope 3 categories upstream & downstream	Inclusion
Transportation and distribution (upstream and downstream) <ul style="list-style-type: none"> <li>■ Offshore Marine fuel</li> <li>■ Offshore Jet fuel [new]</li> <li>■ Onshore Marine fuel [new]</li> </ul>	✓
Waste generated in operations	✓
Business travel <ul style="list-style-type: none"> <li>■ Air Travel</li> <li>■ Rail Travel</li> </ul>	✓
Employee commuting	✓
Use of Sold Products	✓

Emissions for “business travel”, “waste generated in operations” and “upstream and downstream transportation and distribution” categories were quantified with a higher level of accuracy due to:

- Data availability and reliability from suppliers and Siemens Gamesa facilities.
- Potential emissions reductions that could be undertaken or influenced by the Company.

CO2 emissions from biomass combustion and other sources of carbon emissions from short-cycle are not used by Siemens Gamesa.

Together the three emissions scopes provide a comprehensive accounting framework for managing and reducing direct and indirect emissions. The following picture provides an overview of the direct and indirect emissions, the relationship between the scopes and the upstream and downstream sections.

**Scope 1**  
Company facilities and vehicles

**Scope 2**  
Purchased electricity, steam, heating and cooling for own use

**Scope 3**  
Transport and distribution (upstream & downstream), waste generated in operations, business travel, employee commuting and use of sold products

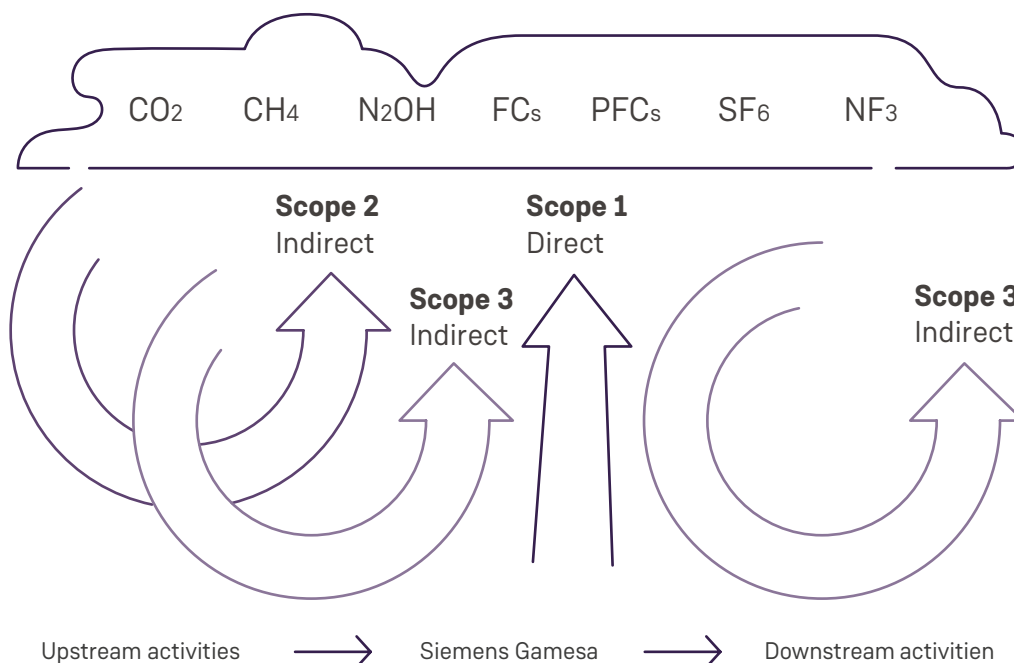


Figure 2 Overview of scope 1, 2 and 3 emissions

### 3.3. Emission sources by locations

Siemens Gamesa has a range of sites already listed in section 3.1. The figure below illustrates the geographic location and associated emissions types per business type.

**>50 Sales offices**  
in 39 countries

**7 Service core competence centers**  
covering all regions

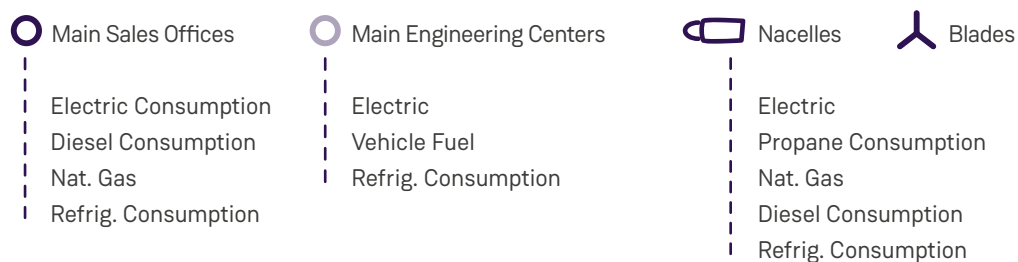
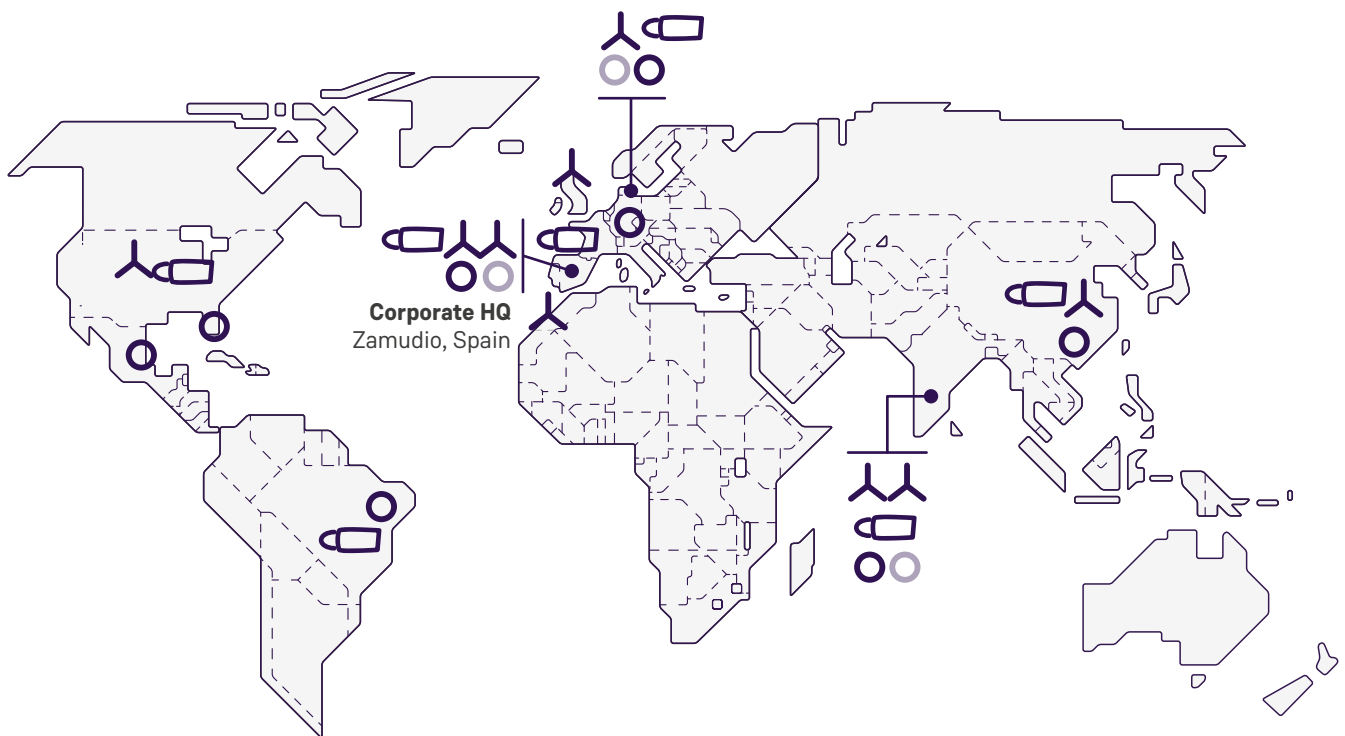


Figure 3 Overview of main SGRE locations and associated emissions at the main categories.

### 3.4. Emission sources by component

Siemens Gamesa produces a variety of components such as blades, gearboxes, electronic components and nacelles that shape the final wind turbine product. The figure below illustrates the fuel input in each production process



Figure 4: Overview of the emissions associated with the processes undertaken by Siemens Gamesa.

## 3.5 Direct and indirect emissions sources identified

### GHG direct emissions sources (Scope 1)

Energy direct emissions			
Point	Activity / Category	Generated GHG	Details
1.1	Natural gas combustion	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Boilers
1.2	Diesel combustion	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Power generator units and boilers
1.3	Propane combustion	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Production lines, forklifts
1.4	Combustion of diesel and gasoline for automotive	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Vehicles (pickups)
1.5	Refrigerants	PFCs, HFCs	Air conditioning
1.6	Dry ice	CO <sub>2</sub>	Dry ice

### GHG indirect emissions sources (Scope 2)

Energy indirect emissions			
Point	Activity / Category	Generated GHG	Details
2.1	Electricity consumption	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Power and lighting
2.2	District heating	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Heating

### Other GHG indirect emissions (Scope 3)

Other Indirect Emissions			
Point	Activity / Category	Generated GHG	Details
3.1	Transportation and distribution	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Marine and jet fuel from offshore and onshore
3.2	Waste generated in operations	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	All facilities listed in section
3.3	Business travel	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Airplane travel Rail travel
3.4	Employee Commuting	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	All SGRE employees
3.5	Use of sold products	No GHG generation	SGRE sold products are powered with wind renewable energy



## 3.6 Exclusions

### Reporting locations

The SGRE procedure PRO-15083 “Environmental Monitoring” describes the internal assessment and energy consumption threshold for locations that need to be included in the environmental monitoring in which SGRE has operational control.

A total of 190 facilities exceeded the energy consumption threshold and are included in this report. For more details about these sites, please refer to section 3.1. The locations that do not exceed the internal energy threshold are not considered in this report.

Emissions sources or locations that individually have an annual energy consumption below 2.000 GJ are excluded from the inventory if the total of exclusions does not exceed 5% of total issuance. The exclusions have been estimated according to the following:

- Employees assigned to offices without data information is <1.062 employees.
- Ratio of t CO<sub>2</sub>-e for office staff: 1,07 t CO<sub>2</sub>e. per employee (Maximum)
- Maximum GHG emissions not counted: 1.136 t CO<sub>2</sub>e.
- % Total GHG emissions not counted: 4,1%

### Other indirect emissions (Scope 3)

The following table express the upstream and downstream categories that are included and exclude of the report.

Scope 3 categories upstream & downstream	Inclusion
Purchased goods, services and capital goods	✗
Fuel- and energy-related activities not included in Scope 1 or Scope 2	n.a
Transportation and distribution (upstream and downstream) <ul style="list-style-type: none"> <li>■ Offshore Marine fuel</li> <li>■ Offshore Jet fuel [new]</li> <li>■ Onshore Marine fuel [new]</li> </ul>	✓
Waste generated in operations	✓
Business travel <ul style="list-style-type: none"> <li>■ Air Travel</li> <li>■ Rail Travel</li> </ul>	✓
Employee commuting	✓
Upstream leased assets	✗
Processing of Sold Products	n.a
Use of Sold Products	✓
End-of-Life Treatment of Sold Products	✗
Downstream Leased Assets	✗
Franchises	n.a
Investments	✗

Emissions excluded from upstream and downstream value chain are not accounted in this report due to lack of completeness and accuracy principles.

# 4. Emission calculations

## 4.1 Reporting period and methodology

### Base year

The base year is Siemens Gamesa's fiscal year 2019, or the period between October 1, 2018 and September 30, 2019.

### Reporting period

This GHG emissions report reflects the situation of Siemens Gamesa's fiscal year 2020, or the period between October 1, 2019 and September 30, 2020.

### Methodology

Quantifying GHG emissions includes the data collection process and the application of documented emission factors. The quantification is based on two calculation-based methodologies, depending on the type of emission source:

- Emission sources in which there is a chemical transformation process (combustion, fixed or mobile) and indirect emissions from electricity consumption:  
Emissions of CO<sub>2</sub> (t CO<sub>2</sub>e) = Activity data x Emission factor
  
- Emission sources where there is no chemical transformation process (fugitive emissions), or in case the results in GHG are different than CO<sub>2</sub> are converted to tones of CO<sub>2</sub>e using the Global Warming Potential (GWP) values provided by the IPCC (e.g. tones of CH<sub>4</sub>):  
Emissions of CO<sub>2</sub> (t CO<sub>2</sub>e) = Activity data x Global warming potential

Siemens Gamesa collects environmental information through a software tool that tracks energy and fuel consumption, and waste generation of all locations. In this way the Company minimizes the uncertainty, enables to standardize the information and allows to compile the data in order to obtain accurate activity data to calculate global emissions. The activity data that is not tracked by the software is requested to suppliers and different internal areas such as spend reports.

## 4.2. Activity data and emissions factors

Siemens Gamesa collects environmental information through a software tool that tracks energy and fuel consumption, and waste generation of all locations. In this way the Company minimizes the uncertainty, enables to standardize the information and allows to compile the data in order to obtain accurate activity data to calculate global emissions. The activity data that is not tracked by the software is requested to suppliers and different internal areas such as spend reports.

Emission Type	Activity Data	Emission Factors	Methodology	Methodology Details
Direct emissions (Scope 1)	Energy consumption and Fuel volume	GHG Protocol <a href="#">Link</a>	Fuel volume and energy consumption converted to GJ x Emission Factors	Purchased volumes of commercial fuels such as natural gas, LPG, diesel, gasoline, heating oil and jet fuel were converted into Gigajoules (GJ) and multiplied by the published emission factors in the GHG Protocol.
Indirect emissions (Scope 2)	Electricity consumption	IEA <a href="#">Link</a>	Purchased electricity x Emission Factor District heating x emission factor	Purchased electricity in kWh multiplied by the published emission factors in the IEA 2016 report. When Energy Attribute Certificates are bought, zero emission is applied. Purchased m3 district heating multiplied by the emissions factors published by the district heating provider.
Other indirect emissions (Scope 3)				
Transportation and distribution (upstream and downstream) <ul style="list-style-type: none"> <li>■ OF Marine fuel</li> <li>■ OF Jet fuel [new]</li> <li>■ ON Marine fuel [new]</li> </ul>	Fuel volume and Distance travelled	IMO- <a href="#">Link</a> p.58 GHG Protocol- <a href="#">Link</a>	Fuel-based method Distance-based method	Purchased volumes of marine, jet and road transport or distance travelled were multiplied by the published emission factor.
Waste generated in operations	Amount of waste generated in operations (t)	DEFRA <a href="#">Link</a>	Waste-type-specific method in accordance with GHG Protocol	“Waste generated in operations” emissions were calculated using waste volumes at facility-level and emission factors from DEFRA 2020.
Business travel <ul style="list-style-type: none"> <li>■ Air Travel</li> <li>■ Rail Travel</li> </ul>	Supplier data -Distance Travelled (miles) Supplier data - Emissions Factors	DEFRA <a href="#">Link</a>	Supplier calculations - Distance-based method	Travel emissions for air and rail were calculated using activity data and emission factors provided by the supplier. The emission factors source is DEFRA.
Employee commuting	<ul style="list-style-type: none"> <li>■ SGRE workforce</li> <li>■ Modal split per representing countries</li> <li>■ Distances travelled per country (km)</li> </ul>	DEFRA <a href="#">Link</a>	Distance-based method in accordance with GHG Protocol	Employee commuting emissions were calculated using SGRE workforce number per country, multiplied by the average transport commute distance by country (Sönnichsen, 2019) and the modal split (Rodrigue, 2017) multiplied by the emissions factor DEFRA.
Use of Sold Products	Energy consumption in sold products (kWh)	IEA <a href="#">Link</a>	Energy consumption	Energy consumption multiplied by the published emission factors from the IEA.

## 4.3. GHG emissions inventory quantification by scope

In the table below, the quantification of GHG emissions related to scope 1, scope 2 and scope 3 categories, where data has been found available, is shown.

GHG emissions quantification by greenhouse gas and category:

Indicator	Unit	Fiscal Year 2019 (Base year)	Fiscal Year 2020
Total Direct GHG emissions (Scope 1)	t CO <sub>2</sub> e	26.437	26.052
Carbon dioxide (CO <sub>2</sub> )	t CO <sub>2</sub>	26.389,42	26.009,13
Methane (CH <sub>4</sub> )	t CO <sub>4</sub>	0,41	0,43
Nitrous oxide (N <sub>2</sub> O)	t N <sub>2</sub> O	0,14	0,12
Total Indirect GHG emissions (Scope 2)	t CO <sub>2</sub> e	44.262	1.857 <sup>1</sup>
Total Other indirect emissions (Scope 3)	t CO <sub>2</sub> e	71.825	516.853
Business travel total	t CO <sub>2</sub> e	9.739	5.101
Air	t CO <sub>2</sub> e	9.552	4.944
Rail	t CO <sub>2</sub> e	187	156
Disposal of waste generated in operations	t CO <sub>2</sub> e	3.061	10.666 <sup>2</sup>
Employee commuting	t CO <sub>2</sub> e	4.841	3.041
Transport and Distribution	t CO <sub>2</sub> e	54.183	498.045 <sup>3</sup>
Use of sold products	t CO <sub>2</sub> e	0	0
<b>TOTAL GHG EMISSIONS (Scope 1, 2 and 3)</b>	<b>t CO<sub>2</sub>e</b>	<b>142.523</b>	<b>544.762</b>

<sup>1</sup>Decrease in Scope 2 emissions is due to the purchase of Energy Attribute Certificates (EACs) which ensure that the origin of the electricity is from renewable sources.

<sup>2</sup>Increase in the amount of waste emissions is due to the increase of waste tones reported compared with FY19.

<sup>3</sup>Increased in transport and distribution category between FY20 and FY19 is due to the addition of jet fuel in Offshore and marine fuel in Onshore business unit.

## 4.4. GHG emissions inventory quantification by business unit

In the table below, GHG emissions quantification by scope (Scope 1 and Scope 2) breakdown by business unit.

Indicator	Unit	Fiscal Year 2019 (Base year)	Fiscal Year 2020
Total Direct GHG emissions (Scope 1)	t CO <sub>2</sub> e	26.437	26.052
Onshore	t CO <sub>2</sub> e	17.202	18.449
Offshore	t CO <sub>2</sub> e	8.485	4.832
Service	t CO <sub>2</sub> e	750	2.771
Total Indirect GHG emissions (Scope 2)	t CO <sub>2</sub> e	44.262	1.857
Onshore	t CO <sub>2</sub> e	34.506	104
Offshore	t CO <sub>2</sub> e	3.668	1.753
Service	t CO <sub>2</sub> e	6.087	0
<b>TOTAL GHG EMISSIONS (Scope 1 + Scope 2)</b>	t CO <sub>2</sub> e	<b>70.699</b>	<b>27.909</b>

# 5. Managing uncertainty

## 5.1 Uncertainty in GHG emissions inventory

Uncertainty in the emissions inventory is a combination of the uncertainties in the emission factors and in the corresponding activity data.

### Emission Factors

The emission factors, calorific data value and oxidation factors used are considered null uncertain as they come from official sources and they are beyond the control of the organization.

### Activity Data

#### ■ Direct emissions (Scope 1) and Indirect emissions (Scope 2):

Data for Scope 1 and 2 is obtained from commercial invoices. As activity data from commercial operation is governed by legal procedure is not necessary to calculate the uncertainty.

#### ■ Other indirect emissions (Scope 3):

Uncertainties in the accounting of the Scope 3 emissions are related to generic assumptions made. Different challenges were faced related to collecting data and ensuring data quality.

Emission Type	Uncertainty description
Waste generated in operations	Lack of emissions factors for some waste types and waste treatment methods in the DEFRA source. Allocation of emissions factors for waste types and waste treatment methods that do not have value in DEFRA emissions source.
Business travel <ul style="list-style-type: none"> <li>■ Air Travel</li> <li>■ Rail Travel</li> </ul>	Lack of certainty in air and rail travel emissions calculations for the month of September of the reporting period due to estimations for compensating for missing supplier data.  Lack of supplier data for rail travel distance.
Employee commuting	Lack of certainty in emissions calculations due to lack of data from employees regarding distance commuted. The calculations were based on average distances travelled by country and generic modal split (public transport and private vehicle) in big cities multiplied by DEFRA emissions factors.

## 5.2 Reducing uncertainty

Uncertainties in this GHG inventory arise mainly from Scope 3 emissions. As a result, Siemens Gamesa is engaging its supply chain towards a complete decarbonization in line with its Scope 3 science-based target. The company is on the way to implement a procurement approach, that is aligned with the Science Based Target initiative commitment by Siemens Gamesa. The initiative will also give to suppliers an opportunity to present their environmental efforts translated in CO2 reductions. The intention of Siemens Gamesa is to improve the future inventory quality and increase the level of confidence users have in the inventory results.

**Noteworthy, COVID-19 outbreak impacted directly in business travel and employees commuting categories from Scope 3. Employees were required to work from home when the work was suitable for it, and business travel activity was carried out only in critical situations and in accordance with national and international regulations. Consequently, emissions in both categories were significantly reduced without affecting business operations.**

In addition to the already mentioned, Siemens Gamesa will follow concrete steps to reduce the uncertainty in the Scope 3 categories reported in this inventory:

### Other indirect emissions (Scope 3):

Emission Type	Reduce Uncertainty Actions
Waste generated in operations	Encourage facilities to improve the reporting and the classification of waste destination; recovery, recycling and reuse.
Business travel <ul style="list-style-type: none"> <li>■ Air Travel</li> <li>■ Rail Travel</li> </ul>	<p>Continue to inform travel suppliers about the efforts SGRE is making towards the development of a GHG inventory and bring awareness of the net-zero emissions target.</p> <p>Encourage suppliers to improve the GHG data delivered to include not only air travel but also rail, automotive and bus emissions.</p>
Employee commuting	<p>Define a method to gather more accurate data from employees. For example, through internal surveys to calculate SGRE employees commute data.</p> <p>Continue with the awareness campaign to communicate to employees the efforts that SGRE is making towards the development of a GHG inventory and the net-zero emissions target.</p>

# 6. Trends & comparative analysis

Since fiscal year 2019, Siemens Gamesa committed to report its companywide GHG emissions. The GHG emissions report of FY19 represents the baseline year for GHG emissions reporting.

The next section will present trends and a comparative analysis between FY19 baseline and current fiscal year data.

Relevant trends to monitor are:

- Emissions per MW installed capacity:**  
 In Fiscal Year 2020, 8.806MW of capacity was installed on the market. This means that the emissions per MW installed equals:  
 $27.909 \text{ t CO}_2\text{e.} / 8.806 \text{ MW installed} = 3,17 \text{ t CO}_2\text{e. per MW installed}$
- Emissions per employee:**  
 End of Fiscal Year 2020, 26.114 persons were directly employed by SGRE. This means that the emissions per employee equals:  
 $27.909 \text{ t CO}_2\text{e.} / 26.114 \text{ employees} = 1,07 \text{ t CO}_2\text{e. per employee}$

Going forward, Siemens Gamesa will monitor and compare its CO<sub>2</sub>e. trends with this baseline year to follow the progress towards the achievement of its SBT in 2025 and net-zero carbon in 2050.

Scope 1 & Scope 2 absolute emissions

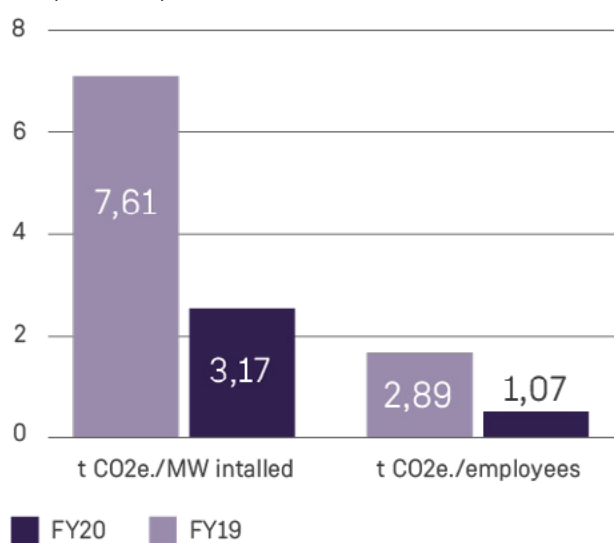


Figure 5 Scope 1 & Scope 2 absolute emissions FY19 vs FY20

Scope 1 & Scope 2 intensity emissions

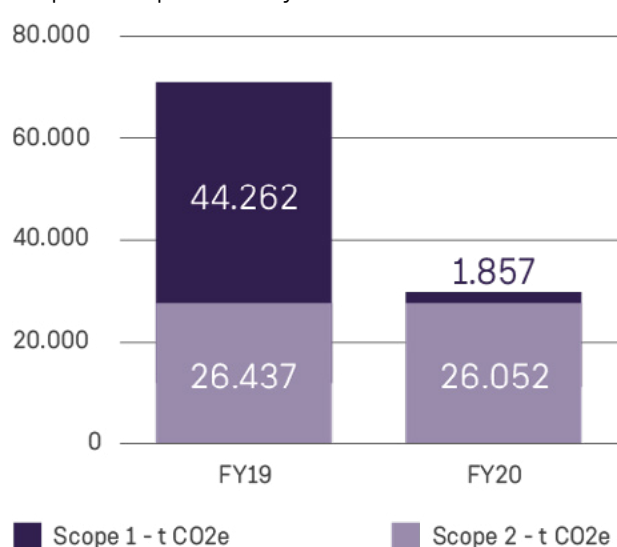


Figure 6 Scope 1 & Scope 2 intensity emissions FY19 vs FY20



# 7. Reduction projects

## 7.1 Direct actions

Siemens Gamesa continues to make reductions and implement energy efficiency measures related to their operations across production facilities and project sites to fulfill its emissions targets. Energy improvement projects are being monitored through energy improvement actions plans.

In FY20, several improvement actions were proposed and for those implemented the following energy savings were achieved: 16.750 GJ

The following actions are examples of initiatives that have been implemented at different plants and offices during the reporting period. The actions aimed at reducing consumption and increase energy efficiency:

Country	Location	Initiative	Savings (GJ)	t CO <sub>2</sub> e Saved
DK	Brande	Change diesel forklifts to electric forklifts	1.919	143
IN	Nellore	Energy reduction due to the implementation of VFD	1.284	259
USA	Hutchinson	Substitute lamps with LED	1.297	156
CN	Lingang Blades	Substitute lamps with LED	1.280	223
USA	Fort Madison	Reduction in LPG Usage by Forklifts	705	45
UK	Hull Blades	Reduction in wall lighting	630	49
DK	Aalborg	Substitute lamps with LED	589	34

## 7.2 Offsetting

Siemens Gamesa is currently investigating Clean Development Mechanism (CDM) projects and sink projects involving reforestation actions that aim to reduce future emissions to balance its carbon footprint.

The wind power project Bii Nee Stipa in Oaxaca, Mexico, was registered as a Clean Development Mechanism (CDM) under the United Nations Framework Convention for Climate Change (UNFCCC). This project generates Certified Emission Reductions (CER) for Siemens Gamesa that are used to offset the non-avoided emissions. Siemens Gamesa has again this year chosen to cancel CERs equivalent to its scope 1 and 2 emissions.

Siemens Gamesa is continuously working to decrease the need for offsetting towards the achievement of the net-zero emissions target by 2050.



**27.909 CERs**  
cancelled in FY20



Figure 7 Wind power project in Bii Nee Stipa

# 8. Conclusion

## 7.1 Direct actions

Siemens Gamesa recognizes that climate change is a global issue requiring urgent and collective action and is committed to contributing to the global economy's decarbonization. We believe that companies can play a pioneering role in the fight against climate change

The Company has pledged its commitment to the Paris Pledge for Action, the Science Based Target Initiative and expanded its ambitions by incorporating a long term target of achieving net-zero emissions by 2050. These commitments demonstrate Siemens Gamesa's agreement to contribute to the accomplishment of the objectives established by the United Nations Sustainable Development Goals.

The scope 1 and 2 of the Company are currently:

**27.909t CO<sub>2</sub>e.**

The company will work continuously to reduce its emissions towards the achievement of the net-zero emissions target through the following emission reduction levers:

- Energy reductions and energy efficiency measures
  - Electricity supply from renewable energy-based sources
- Green mobility plan to reduce fleet emissions
- Employee awareness campaigns and idea management as a way to capture and implement employee ideas related to sustainability
- Supplier engagement across the value chain
- Offset of non-avoided emissions through compensation projects

Siemens Gamesa is working on strengthening the accuracy and reliability of the data through the HSE reporting software by improving the methods to collect and track data such as energy consumption, fuel consumption and waste generation for all locations of the Company. This software minimizes the uncertainty, standardizes the information flow and compiles analytics from the data to calculate global emissions related to the organization.

In addition, Siemens Gamesa continues reporting five GHG inventory categories for the Scope 3 upstream and downstream value chain and is currently establishing a new strategic program in light of its SBT for Scope 3. Siemens Gamesa looks for engage more with key suppliers to encourage them to reduce their Scope 1 and Scope 2 emissions affecting the products and services they supply us. This program is the basis for the development of company-wide program to reduce emission in the company's value chain.

Overall, the GHG emissions report supports in:

- Obtaining an improved overview of Siemens Gamesa's direct and indirect GHG emissions and supporting the decision-making process towards the reduction of GHG impacts.
- Identify cost effective reduction opportunities and early voluntary actions
- Setting ambitious GHG reduction targets as well as effectively measuring and reporting progress towards these targets
- Publicly disclose this information in a transparent and verified manner and voluntarily participate in GHG reduction programs and certifications.

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