

# **QATAR'S 1<sup>ST</sup> BIENNIAL UPDATE REPORT (BUR) ADDENDUM**

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## List of Acronyms

AFOLU	Agriculture, Forestry, And Other Land Uses
BAU	Business As Usual Scenario
BUR	Biennial Update Report
CCD	Climate Change Department
CCS	Carbon Capture and Sequestration
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
DC	District Cooling
DSWMC	Domestic Solid Waste Management Centre
EU ETS MRR	EU Emission Trading System Monitoring and Reporting Regulation
EU MRR	European Union Monitoring and Reporting Regulation
Gg	Gega Gram
GHG	Greenhouse Gas
GIS	Geographic Information System
GTL	Gas To Liquids
HFCs	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
JBOG	Jetty Boil-Off Gas
km	Kilometer
LNG	Liquefied Natural Gas
m	Meters
MECC	Ministry Of Environment and Climate Change
MMSCFD	Million Standard Cubic Foot Per Day
MRV	Monitoring, Reporting, And Verification
MSF	Multistage Flash Distillation
Mt	Million Tons
MMTPA	Million Tons Per Annum
MWp	Megawatts-Peak
N <sub>2</sub> O	Nitrous Oxide
NDC	Nationally Determined Contributions

NDS	National Development Strategy
NGL	Natural Gas Liquids
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
O <sub>3</sub>	Ozone
OGMP	Oil And Gas Methane Partnership
PFCs	Perfluorocarbons
PM <sub>10</sub>	Particulate matter with a diameter of 10µm or less
PV	Photovoltaic
QA/QC	Quality Assurance/Quality Control
QNV 2030	Qatar National Vision 2030
RO	Reverse Osmosis
SO <sub>2</sub>	Sulfur Dioxide
TR	Tons Of Refrigeration
TSE	Treated Sewage Effluent
UNFCCC	United Nations Framework Convention on Climate Change

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  - Ministry of Energy Affairs
  - Ministry of Foreign Affairs
  - Ministry of Municipality
  - Ministry of Transport

- National Planning Council
- Civil Aviation Authority
- **Major Corporations and Organizations**
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  - Ashghal “Public Works Authority”
  - Kahramaa (Qatar General Electricity & Water Corporation)
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This report is the result of the invaluable insights and guidance provided by each of these contributors. Their commitment to advancing Qatar’s climate initiatives has been essential to the completion of this comprehensive document.

Together, we have created a report that not only highlights Qatar’s current achievements in climate action but also lays a solid foundation for future progress in sustainability and environmental responsibility.

## Section 1: National Circumstances

The State of Qatar, a peninsula in the Arabian Gulf with a land area of approximately 11,637 km<sup>2</sup> and a 550 km coastline, is characterized by a hyper-arid climate, limited freshwater resources, and ecosystems that are sensitive to environmental changes. The country experiences extreme summer temperatures, mild winters, and low, irregular annual rainfall averaging 68.8 mm, making it particularly vulnerable to the impacts of climate change.

### Biodiversity and Water Resources

Qatar is committed to conserving its natural environment by aiming to protect 30% of its land and restore 30% of degraded habitats by 2030. It is home to a rich array of desert-adapted biodiversity, with 1,152 recorded species, including key endangered species such as the Arabian oryx and the Greater spotted eagle. Currently, 11 terrestrial protected areas cover 3,145 km<sup>2</sup>, about 7.4% of the country's area.

The marine environment is rich in coral reefs, mangroves, and seagrass beds, which provide critical habitats for endangered species such as dugongs and sea turtles. Biodiversity is increasingly threatened by coastal development, sea-level rise, and climate-induced changes. Qatar established two marine protected areas—Al Thakhira and Khor Al Odaid—covering over 700 km<sup>2</sup>. Nearly 30% of the country's land and marine areas are under protection, reflecting its strong commitment to environmental preservation.

Desertification is addressed through initiatives outlined in the Qatar National Climate Change Action Plan, which includes creation of a greenbelt around Doha, the rehabilitation of degraded meadows, and the use of native, drought-tolerant plant species such as *Jatropha curcas*. As part of these efforts, the Ministry of Environment and Climate Change (MECC) is leading the rehabilitation of 100 meadows over five years, with 38 meadows already fenced and restored.

Water resources include groundwater, desalinated seawater, and treated sewage effluent (TSE). Groundwater is primarily used for agriculture, but over-extraction has led to depletion and salinity issues. Desalination now accounts for 61% of water supply, and TSE use has grown to 17% by 2021, aiding landscape irrigation and aquifer recharge. The country's water demand has increased, particularly in agriculture and domestic use, while the industrial sector shows the fastest growth in water consumption. Qatar developed strategic water reserves and aims to expand them to meet future demand. The Third National Development Strategy (2024–2030) prioritizes sustainable water management through groundwater metering, water quality regulation, desalination technology advancement, and reduction of water loss and per capita consumption by 15%. “Tarsheed” program supports conservation and water quality monitoring.

Qatar faces related to limited water resources, and arid climate, with only 19–21% of its 65,000 hectares of cultivable land currently utilized. To address these constraints, initiatives such as drip irrigation and greenhouses have been implemented. Additionally, fish production increased by 26.4% between 2021 and 2022.

### **Population, Education, and Health**

Population expanded rapidly reaching around nearly 2.93 million in 2022, largely driven by an influx of expatriate workers, who make up 70–75% of the population. The country's development is guided by the Qatar National Vision 2030 and successive National Development Strategies (NDS), which have enhanced living standards, health, education, and services. The education system promotes quality, equity, and access for all, with progress made in reducing the gender gap. The health sector, through various national strategies, aims to deliver high-quality, preventive, and accessible care. Qatar faces health challenges typical of developed nations, such as obesity and non-communicable diseases.

### **Economy, Energy, and Transport**

Economic growth is primarily fueled by the oil and gas sector, with efforts to diversify into non-hydrocarbon sectors like tourism, finance, and technology. Major industrial advancements include the establishment of key energy and manufacturing companies, SME support, and the development of three industrial cities.

Qatar is a global leader in the energy sector and one of the world's largest exporters of liquefied natural gas (LNG). The country's economy is highly export-oriented, with the majority of its hydrocarbon production directed to international markets. . As of 31 December 2022, Qatar's confirmed hydrocarbon reserves amounted to approximately 384 billion barrels of oil equivalent. These reserves consisted of approximately 1,740.7 trillion standard cubic feet of natural gas, 2.65 billion barrels of crude oil and 71.40 billion barrels of condensate. Natural gas dominates Qatar's energy production, accounting for 67.1%, with LNG output reaching 77.8 million tons in 2022. Ras Laffan Industrial City serves as the central hub for LNG operations, managed and overseen by the energy sector.

Power generation is primarily gas-fired, accounting for most of the country's energy supply, with total capacity expanding to 51.6 terawatt-hours by 2021. The country has also advanced its desalination efforts by incorporating reverse osmosis technology in plants such as Ras Abu Fontas.

Qatar is advancing smart city initiatives, including the \$45 billion Lusail City project, which integrates renewable energy and smart mobility solutions, and Msheireb Downtown, recognized as the world's first sustainable downtown regeneration targeting LEED Gold certification. Additionally, district cooling (DC)

systems meet 17% of the nation's cooling demand by utilizing recycled water, contributing to energy efficiency and sustainability.

By 2022, Qatar had completed 3,253 kilometers of roads, marking a 141% increase since 2017. The country's smart mobility efforts are spearheaded by the TASMU program, which promotes the adoption of electric vehicles and the development of intelligent transport systems.

### **Air Quality and Waste management**

Air quality is actively monitored through 40 stations, with key pollutants such as SO<sub>2</sub>, NO<sub>2</sub>, and PM<sub>10</sub> maintained within safe limits, and ozone (O<sub>3</sub>) levels decreasing by 18.6% between 2020 and 2021. The country has expanded its green spaces significantly, increasing from 56 parks in 2010 to 148 parks covering 43 million m<sup>2</sup>, supported by initiatives like the "One Million Trees" campaign launched in 2019. Regarding waste management, Qatar generates approximately 2.5 million tons of waste annually and aims to increase recycling rate. It also pioneers waste-to-energy technology at the Mesaieed plant, which produces 30,000 tons of fertilizer per year and generates 269 GWh of power.

## Section 2: National Greenhouse Gas Inventory

This section presents the national inventory of greenhouse gas (GHG) emissions by sources and removal by sinks not controlled by the Montreal Protocol for the year 2022.

Relevant government ministries and entities were engaged from the outset of the GHG inventory development process to identify national data availability and assess data quality. Standardized reporting templates were distributed to data providers from key sectors and sub-sectors based on the IPCC's 2006 inventory guidelines (IPCC, 2006) and the 2019 Refinement (IPCC, 2019). The Ministry of Environment and Climate Change facilitated the gathering of data from various sources across Qatar, including from major industry players in the private sector. In addition to government entities and the private sector, data was also collected from the National Statistics Center that annually publishes the country's statistical yearbook.

Two methodologies were used to develop the GHG emissions inventory, namely the Intergovernmental Panel on Climate Change (IPCC)'s 2006 GHG Inventory guidelines and the European Union's Monitoring and Reporting Regulation (EU MRR; EU, 2013). The EU MRR methodology was applied to develop the GHG inventory for emissions associated with specific activities in energy sector barring mobile combustion (transportation) and Non-Metallic Minerals and IPPU barring cement and lime units, while the IPCC's 2006 guidelines were used to account for CH<sub>4</sub> and N<sub>2</sub>O emissions from the same activities in energy and IPPU. All emissions from activities in the agriculture, forestry, and other land uses (AFOLU), waste source categories, non-metallic minerals, mineral industry (cement and lime), and transport were estimated using the IPCC's 2006 guidelines. Table 1 summarizes the specific emission types and source categories for which these two methodologies were applied.

**Table 1 Application of inventory methodology by emission type and source**

Category	Subcategory	CO <sub>2</sub>		CH <sub>4</sub> & N <sub>2</sub> O
		EU MRR	IPCC	IPCC
Energy	1.A.1.a.ii - Combined Heat and Power Generation (CHP)	●		●
	1.A.1.b - Petroleum Refining	●		●
	1.A.1.c.ii - Other Energy Industries	●		●
	1.A.2.a - Iron and Steel	●		●
	1.A.2.b - Non-Ferrous Metals	●		●
	1.A.2.c - Chemicals	●		●
	1.A.2.f - Non-Metallic Minerals		●	●
	1.A.3.a.ii - Domestic Aviation		●	●
	1.A.3.b.i.1 - Passenger cars with 3-way catalysts		●	●
	1.A.3.b.iii - Heavy-duty trucks and buses		●	●
	1.A.3.b.iv - Motorcycles		●	●
	1.A.3.d.ii - Domestic Water-borne Navigation		●	●

Category	Subcategory	CO <sub>2</sub>		CH <sub>4</sub> & N <sub>2</sub> O
		EU MRR	IPCC	IPCC
Energy	1.B.2.a.ii – Flaring	●		●
	1.B.2.b.i – Venting	●		●
	1.B.2.b.ii – Flaring	●		●
	1.B.2.b.iii.6 – Other	●		●
	1.C.2.a – Injection	●		●
	1.C.2.b – Storage	●		●
IPPU	2.B - Chemical Industry	●		●
	2.C.1 - Iron and Steel Production	●		●
	2.C.3 - Aluminum production	●		●
	2.A.1 - Cement production		●	●
	2.A.2 - Lime production		●	●
AFOLU	All subcategories		●	●
Waste	All subcategories		●	●

A sectoral approach was used to estimate GHG emissions from activities in each source category. Site-specific activity data were assembled, and a mix of site-specific and default emission factors were used to build the sectoral GHG inventory.

Tier-1 approach was applied for all reporting categories in the AFOLU, waste, and IPPU categories such as non-metallic minerals, mineral industry (cement and lime), AFOLU and waste. However, a combination of higher tiers is used in the other energy and IPPU sectors and the uncertainty is very low. GHG emissions are reported in Gg for carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and carbon dioxide-equivalent (CO<sub>2</sub>e). The IPCC 100-year Global Warming Potentials (GWPs) from the Second Assessment Report (SAR) were used to estimate CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions: 1 for CO<sub>2</sub>, 21 for CH<sub>4</sub>, and 310 for N<sub>2</sub>O.

A breakdown of the total GHG emissions in Gg CO<sub>2</sub> equivalent is shown in Table 2 and Table 3 for 2022. Net GHG emissions were 114,860.88 Gg CO<sub>2</sub>e. In the energy sector, a total of 109,036.85 Gg CO<sub>2</sub>e were emitted from fuel combustion activities, mobile combustion (transport), and from fugitive emissions, with 1,176 Gg CO<sub>2</sub> captured and injected, resulting in net emissions of 107,861.21 CO<sub>2</sub>e from the energy sector. A total of 4,229.92 Gg CO<sub>2</sub>e was emitted from IPPU activities; 307.04 Gg CO<sub>2</sub>e from agricultural activities; and 2,462.71 Gg CO<sub>2</sub>e from waste management activities. The amount of carbon sequestered by managed urban green spaces, parks, and Qatar's 14 protected biodiversity areas has not been estimated. Figure 1 shows the percentage GHG emissions from all national sectors of Qatar in 2022. Energy-related activities accounted for the largest share of total GHG emissions in 2022. Please refer to the Qatar's 2<sup>nd</sup> National Communications report pages 39 to 50 for detailed sector-wise methodologies followed for the GHG inventory process

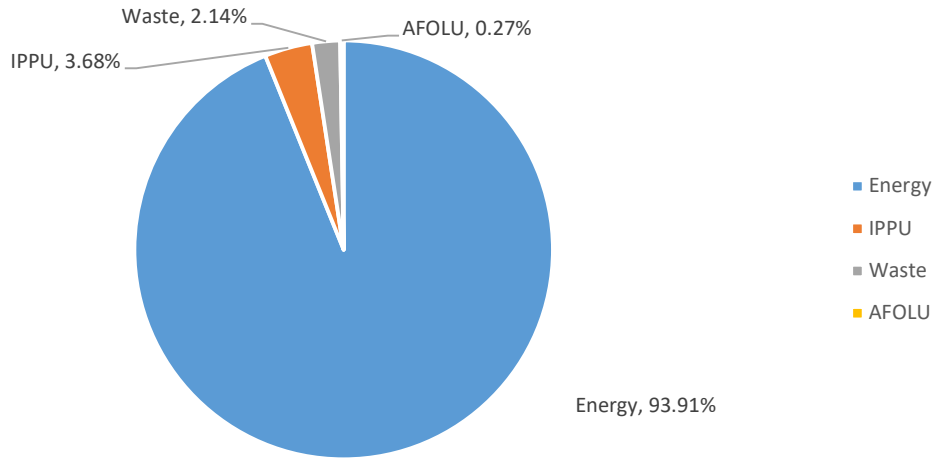
**Table 2 : National GHG inventory per sector in Qatar, 2022**

Source category	Source subcategory	Gg			
		CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Fuel Combustion Activities	Energy industries	79,236	79,035	7.8	0.12
	Manufacturing & construction	15,128	15,111	0.3	0.03
	Transport	11,785	11,543	0.6	0.74
Fugitive emissions (oil & natural gas)		2,889	2,764	5.9	0.00
CO <sub>2</sub> transport & storage		-1,176	-1,176	0.0	0.00
<b>Net national emissions(Energy)</b>		<b>107,861</b>	<b>107,277</b>	<b>14.7</b>	<b>0.89</b>
<b>Total national emissions (Energy)</b>		<b>109,037</b>	<b>108,452</b>	<b>14.7</b>	<b>0.89</b>
Mineral Industry		2,218	2,218	0.00	0
Chemical Industry		821	815	0.28	0
Metal Industry		1,190	1,190	0.01	0
<b>Total National Emissions (Industry)</b>		<b>4,230</b>	<b>4,224</b>	<b>0.29</b>	<b>0</b>
Enteric fermentation		293	0	13.9	0
Manure management		14	0	0.7	0
<b>Total National Emissions (agriculture)</b>		<b>307</b>	<b>0</b>	<b>14.6</b>	<b>0.0</b>
Solid waste disposal		2,229	0	106	0
Solid waste biotreatment		11	0	0.32	0.02
Incineration and Open Burning of Waste		168.61	158.424	0.00013	0.03285
Wastewater treatment & discharge		54.14	0	2.55	0
<b>Total National Emissions (Waste)</b>		<b>2,462.71</b>	<b>158.424</b>	<b>108.99</b>	<b>0.03285</b>

**Table 3 Net GHG emissions in Qatar, 2022**

GHG source/sink	Gg			
	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Energy (net)	107,861.21	107,276.64	14.65	0.89
Industrial Processes and Product Use	4,229.92	4,223.64	0.29	0.0
Agriculture	307.04	0	14.62	0.0
Land use, Land-use Change, and Forestry	0	0	0.0	0.0
Waste	2,462.71	158.42	108.99	0.05
<b>Net emissions</b>	<b>114,860.88</b>	<b>111,658.74</b>	<b>138.55</b>	<b>0.94</b>
<b>Total emissions</b>	<b>116,036.51</b>	<b>112,834.37</b>	<b>138.55</b>	<b>0.94</b>

Figure 1 Percentage GHG emissions from all national sectors of Qatar in 2022



## Net GHG emission trends; 2007, 2015, and 2022

■ Energy (net) ■ IPPU ■ AFOLU ■ Waste

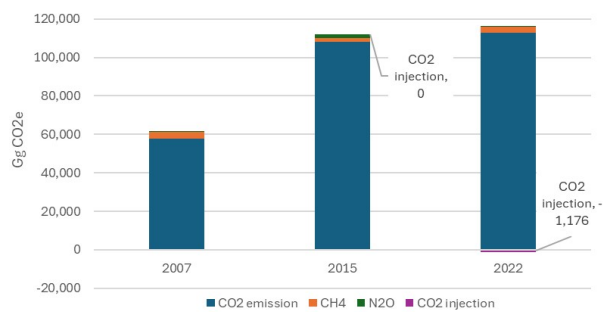
Figure 2-a presents the results of net emissions by GHG type for the three national inventories that have been conducted in Qatar, namely 2007 - the inventory year reported in the Initial National Communication - 2015 and 2022. Several notable trends are evident, as briefly described in the bullets below.

- Net emissions nearly doubled over the 2007-2022 period, corresponding to an average annual net emissions growth rate of approximately 4.2%.
- Energy remains the main component responsible for the overall increasing trend in GHG emission levels, with the share of GHG emissions from the energy sector remaining well above 90% in all inventory years.

Several areas of improvement are needed to expand source coverage and reduce uncertainty. These include:

- Estimate and report emissions using the Reference approach.
- Adopt a unified data collection methodology for all sectors and subsectors.
- Improve data development and archiving for AFOLU to account for CO<sub>2</sub> sequestration in urban green parks, mangrove plantations, and other managed biodiversity areas.
- Improve inventory completeness by enhancing activity data quality using national data.
- Initiate a central data collection system between the Ministry of Environment and Climate Change and other national authorities to streamline and improve GHG data accuracy and reduce collection time and effort.

a) Total emissions by gas type



b) Total emissions by emitting sector

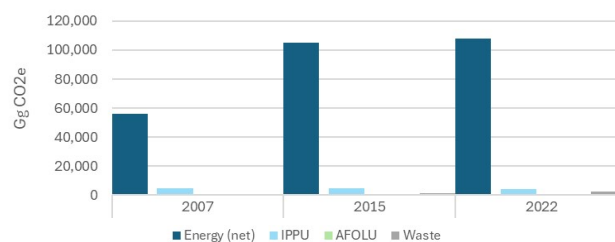


Figure 2 Trends in total GHG emissions by gas type and emitting sector; 2007, 2015, and 2022

## Section 3: Mitigation Initiatives

Through its Nationally Determined Contribution (NDC)(2021), Qatar has addressed the challenge of aligning its aspirations for economic growth with the pressing need for low-carbon, climate resilient development. Submitted in August 2021, the NDC reflects Qatar's commitment to reducing national GHG emissions.

To meet its emission reduction commitments, Qatar has launched an ambitious programme to promote clean energy initiatives such as renewables and electric vehicles; intensify its use of carbon capture and storage technology in the oil and gas sector; and introduce other measures to exploit sustainable energy opportunities. The specific mitigation measures discussed in this section are focused on the set of GHG emission reduction strategies that have been identified as central to achieving its GHG emission target by 2030. While all GHG-emitting sectors are considered, the focus is primarily on the following sectors: Oil & gas; Power & water; Transport; Building, construction & industry; and other minor emission sources. Taken together, these sectors accounted for nearly 97% of national emissions in 2022. Major categories of GHG mitigation strategies that will be implemented in the coming years are presented in Table 3.

**Oil & gas sector** encompasses the value chain spectrum for oil and gas operations. This includes the exploration, production, processing, marketing, and sales of oil and gas, liquefied natural gas, natural gas liquids (NGL), gas-to-liquids products, and refined products.

**Power & water sector:** Most of Qatar's power production comes from the combustion of natural gas in high efficiency combined cycle power plants that co-produce electricity and desalinated water. Urban water supply is mainly from seawater desalination facilities using energy-intensive technologies such as Multi-Stage Flash (MSF) and Reverse Osmosis (RO).

**Transport sector:** Qatar's transport sector is characterized by continuous investments in modern transport infrastructure, and an emphasis on sustainability and connectivity, aligning with the country's broader economic and developmental goals under Qatar National vision 2030.

**Other sectors:** GHG emission reductions has also been conducted in the buildings, construction & industry sector, the AFOLU sector and the waste sector. These sectors are characterized by ongoing investments to improve energy efficiency, reduce industrial process emissions, and increase recycling, consistent with Qatar's broader economic and developmental goals under QNV 2030.

**Table 4 List of some initiatives strategies to contribute to Qatar’s GHG reduction target**

Type	Project description
Carbon capture and storage (CCS)	Qatar is deploying carbon capture and storage (CCS) infrastructure to capture, utilize and store CO <sub>2</sub> from its facilities. In 2019, Qatar successfully inaugurated the largest CCS facility in the MENA region with a nameplate capacity of 2.2 MTPA of CO <sub>2</sub> . By the end of 2022, the facility had captured and successfully stored nearly 5 million metric tons of CO <sub>2</sub> since its inception.
Energy efficiency programs:	The Oil and Gas sector is targeting improvements in energy efficiency. To achieve this, an extensive energy efficiency improvement programme is being implemented across upstream, LNG, refining, GTL and petrochemical assets. The programme covers quarterly monitoring of energy use and benchmarking against design, as well the implementation of energy saving initiatives.
Flare reduction	Substantial investments in flare reduction initiatives have been made to reduce the emissions. Some of notable initiatives in flare reduction include the installation and the start-up of jetty boil off gas (JBOG) facilities in 2014 enabled to reduce 18 Mt of CO <sub>2</sub> e since then until 2024 . In addition to JBOG recovery, the flaring mitigation programme at Ras Laffan Industrial City has successfully reduced flaring at the operating companies by approximately 70 per cent. since 2012.
Methane emissions	Methane emissions mitigation is a core focus area and Qatar is fully committed to achieving near-zero methane emissions across all oil and gas operations. The oil and gas sector reports its methane emissions in accordance with the OGMP 2.0 framework. Assets are required to undergo comprehensive assessments to achieve the emissions reporting requirements. In addition, a robust national MRV framework is in place for all assets to ensure accurate measuring and reporting of methane emissions and verification by an approved independent third-party verifier.

<p>Renewable energy expansion</p>	<p>Qatar’s first renewable energy project commenced operations in Qatar in 2022. The Al Kharsaah solar photovoltaic (PV) power plant has a total installed capacity of 800 megawatts-peak (MWp). The plant can supply approximately 10% of Qatar’s peak power consumption and over its lifetime will help to avoid around 26 million metric tons of CO<sub>2</sub> emissions.</p> <p>In addition, two PV solar power plants with a total capacity of 875 MW are expected to commence electricity generation. Coupled with the Al Kharsaah solar PV power plant, these solar projects will increase Qatar’s renewable energy generation capacity to 1.675 GW.</p> <p>As part of Qatar’s commitment to expand renewables generation capacity, it has announced that it will build one of the world’s largest solar power plants with a production capacity of 2,000 megawatts in the Dukhan area that will boost Qatar’s PV solar power production capacity to about 4,000 megawatts.</p>
<p>Energy &amp; water production efficiency:</p>	<p>This involves an intensification of the numerous initiatives that have already been implemented to increase desalinated water production efficiency, reduce per capita electricity and water consumption, and maximize the reuse of treated wastewater and industrial water for various uses.</p>
<p>Energy conservation in buildings</p>	<p>This involves enhancing thermal insulation in buildings as part of the Tarsheed initiative, Qatar’s National Program for Conservation and Energy Efficiency, led by Qatar General Electricity &amp; Water Corporation (KAHRAMAA) in cooperation with the Ministry of Municipality and Urban Planning.</p>
<p>Water conservation regulation</p>	<p>This involves an intensification of efforts to reduce per capita water consumption through KAHRAMAA’s Tarsheed initiative as well as new regulatory options.</p>
<p>Vehicle electrification</p>	<p>Based on the Qatar National Vision 2030, the Ministry of Transportation continues its efforts to enhance sustainability in the transport sector by adopting a comprehensive electric vehicle transition plan aimed at building a sustainable and environmentally friendly transport system. This transition focuses heavily on replacing the public transport fleet and school</p>

	<p>bus fleet with electric buses. One of the most significant achievements is the operation of 25% of public transport buses using electric buses during the FIFA World Cup 2022, paving the way for a rapid expansion of public transport buses to be electric.. This transition will continue to increase. This transition in the public transport fleet, which serves thousands of daily trips for citizens and residents, has resulted in a significant reduction in carbon emissions and a noticeable improvement in air quality.</p>
Vehicle efficiency standards	<p>This involves the introduction of Corporate Average Fuel Economy (CAFE) standards in 2019 for road transportation to improve fuel economy.</p>
Intensification of public transport	<p>This involves the introduction of Integrated Transport Solutions with the aim of integrating various modes of transport to provide seamless connectivity for residents and visitors, enhancing the overall attractiveness of public transport.</p>
Solid waste management	<p>Qatar has invested in waste-to-energy technologies to reduce landfill dependence and generate energy. The Domestic Solid Waste Management Centre (DSWMC), installed in 2011 in Mesaieed, is a key facility that processes waste to produce energy and is the first integrated solid waste management facility.</p>

## Section 4: Constraints and Gaps

The subsections below outline the key constraints and gaps that will need to be addressed in order to ensure compliance with Qatar's obligations under the UNFCCC. Several technical, institutional, and legislative constraints and gaps across various levels have been identified.

**Institutional arrangements:** Aligning with its mandate as the UNFCCC National Focal Point (NFP), the Climate Change Department at the Ministry of Environment and Climate Change (CCD-MECC) initiated the development of the Biennial Update Report (BUR) development based on direct communication using questionnaires after organizing a workshop with the relevant stakeholders in the absence of an effective MOU or any other legal mandate arrangements. Hence, this gap in institutional arrangements is critical in reporting, and this will be addressed in future reports.

**Data completeness:** To meet the Paris Agreement's Enhanced Transparency Framework (ETF) requirements, Qatar is developing an expanded, comprehensive National Measurement, Reporting, and Verification (MRV) system. Building on the existing framework deployed for its UNFCCC reporting obligations, this new integrated architecture aims to track progress toward Qatar's NDC ambitions and strengthen the accuracy and transparency of its Biennial Transparency Reports (BTRs). Specifically, the enhanced MRV system will encompass a robust National GHG Inventory—which incorporates detailed facility-level reporting—alongside comprehensive tracking for mitigation actions, adaptation efforts, and support. Ultimately, this expanded system will lay the essential groundwork for all future reporting cycles.

**Greenhouse gas emissions:** The GHGs reported in this BUR are only CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, the major contributors to total emissions, and other GHG gases, such as HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub> are not reported.

**Quality Assurance/Quality Control:** Despite the notion that most of the data were accurate because they were acquired using EU MR regulation, their coverage is limited based on the capacities of assets, and no QA/QC backup information or uncertainty assessment is accessible. This condition is the same for all the sectors. Activity data is still insufficient for many source categories in some sectors to adopt a higher IPCC methodology.

## Section 5: Other information

In Qatar, the Ministry of Environment and Climate Change (MECC) is the primary governmental body responsible for climate change matters. Key responsibilities of the MECC include representing Qatar in international climate negotiations, formulating and implementing national climate change policies, and promoting environmental sustainability, biodiversity conservation, and pollution control. The MECC is the designated national competent authority responsible for ensuring the development, adoption, and implementation of nationwide strategic policies and plans leading to the mitigation of GHG emissions and adaptation to the adverse impacts of climate change. In addition, the MECC mobilizes national stakeholders responsible for implementing mitigation and adaptation measures, with periodic interim reporting on the status of overall success nationwide. Moreover, the MECC is responsible for preparing and submitting Qatar's reports and communications related to climate change, including those under the UNFCCC and its protocols. The MECC has launched a program to develop a national Monitoring, Reporting, and Verification (MRV) system to ensure a continuous collection and analysis of relevant climate change data and information, considering present and future requirements. The national MRV system has two main components:

- National GHG emissions: Qatar's national GHG inventory encompasses emissions across key sectors, including energy (with transportation), Industrial Processes and Product Use (IPPU), waste, and AFOLU, ensuring comprehensive national coverage. As part of ongoing improvements, facility-level GHG reporting has been introduced to provide detailed, plant-specific data for major point sources. This enhanced dataset strengthens the accuracy and reliability of the inventory and supports the application of higher-tier estimation methods. The integration of sectoral and facility-level data into a unified web-based MRV platform is currently underway, enabling more robust data management, transparency, and reporting over time.

Climate Action MRV: Qatar is developing a web-based Climate Action MRV system to track progress toward its NDC and national climate strategies. This system will cover mitigation, adaptation, and support measures.