



**State of Qatar**

**Ministry of Municipality and Environment**

**Nationally Determined  
Contribution  
(NDC)**

August 2021

## 1. Executive summary:

The State of Qatar is pleased to communicate its Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in accordance with decisions 1/CP.19, 1/CP.20 & in line with decision 24/CP.18 and the provisions and principles of UNFCCC. The Intended Nationally Determined Contribution (INDC), communicated in 2015, was designed to reflect a balanced approach where adaptation, economic diversification, and mitigations were given equal treatment as suggested by Article 4.7 and Article 7 of the Paris Agreement (PA).

This current communication reflects an enhanced ambition by the State of Qatar towards reducing its overall emissions in response to the guidance set forth in Article 4.4 of the Paris Agreement. Qatar intends to reduce 25% of its GHG emissions by the year 2030, relative to baseline scenario {Business-As-Usual (BAU)}.

For the past several decades, Qatar has maintained a pioneering role in the international efforts to tackle climate change & promote sustainable development through the export of natural gas and its derivatives to the world's energy market. These fuels are cleaner & efficient energy sources compared to conventional fuels. They contribute to both, CO<sub>2</sub> emission reduction & improvement of air quality conditions.

In accordance with PA Article 4.8 and Decisions 1/CP.21, 4/CMA.1, Qatar stands firm in its commitment to the Paris Agreement and is determined to pursue its ambition and actions for climate adaptation and mitigation as per its national circumstances and capability. The pertinent information to that effect are listed as follows:

1	Reference base year	2019
2	Target year	2030
3	Sector coverage: Economic diversification & Adaptation Measures with Mitigation Co-Benefits.	Energy including transport & downstream industries; building & construction industry, water management, waste, and infrastructure.
4	Emission reduction ambition.	The reduction of 25% in GHG emissions for the year 2030, relative to BAU scenario is consistent with provisions stipulated in Articles 4.3, 4.4 and 4.7 of PA. Also, Article 6 is considered in the implementation.
5	BAU and NDC target scenarios	The BAU scenario starts in the year 2019 and considers mitigation measures implemented by the State of Qatar until the end of 2019. The NDC target scenario represents a deviation from the BAU, accounting for implemented and planned measures for the period 2020-2030.
6	Consistency with IPCC guidelines and methodologies	Greenhouse gases covered: Carbon dioxide (CO <sub>2</sub> ), Methane (CH <sub>4</sub> ), Nitrous Oxide (N <sub>2</sub> O).

		Methodologies to be followed are based on the 2006 IPCC Guidelines.
7	Fairness and ambition of NDC based on national circumstances	Qatar is a low GHG emitting country. Historically it has been actively participating in the global efforts to address climate change through provision of cleaner natural gas fuels to the global energy market, thereby reducing the international consumption of carbon intensive alternatives. The Qatari economy is highly dependent on natural gas export revenues. This makes Qatar vulnerable to the negative impacts of response measures as well as the impact of climate change and its adverse effects (Art. 4.8 of the Convention).
8	Contribution to the accomplishment of the objective of Article 2 of the convention.	Through the mitigation measures by 2030 and considering the socio-economic development objectives, Qatar will contribute on an equitable basis to the achievement of the objective of Article 2 of the convention.

## 2. National Circumstances

Qatar is a developing country, a small peninsula in the Western part of the Arabian Gulf. Climatic conditions are extreme due to the prevailing desert environment with an average annual rainfall of less than 80 mm, with significant inter-annual variations. This results in a scarcity of drinkable water and local food supply. The state depends highly on the desalination of seawater as the main water source for urban needs in addition to a limited reserve of ground water that's used for irrigation purposes.

Although the essential living resources are rare, Qatar is blessed with vast natural gas resources that are being used to overcome the living difficulty on this land. Since the exploration of hydrocarbons in Qatar, the oil & natural gas sector, together with the petrochemical sector have been the key contributors to the economic and social growth of the state and welfare of the population.

Qatar's economic prosperity depends on the oil & gas sector since it contributes a large portion of the GDP. At the same time, the oil & gas sector is also the leading contributor to domestic GHG emissions. Consequently, balancing economic stability and environmental sustainability will be essential for long-term success in the mitigation of climate change. Transition to a more sustainable economy is essential without jeopardizing the economic prosperity of the nation. Given its geographic location, Qatar is likely to suffer from severe consequences of global warming. Under the major impact of climate change, Qatar is extremely vulnerable to rising sea level and air temperature increase, leading to inland flooding and heat exhaustion of its population, in addition to the potential risks to the marine biodiversity, food security, loss and damage due to climate change.

Sea level rise receives most of the government attention because of the large coastal population at risk of inundation (particularly during extreme sea level events). Subsequently, climate change also

poses a threat to the tourism industry of Qatar, largely due to the increase in temperature and frequency of dust storms. Qatar's ecology, environmental resources, infrastructure and human systems are vulnerable to the adverse impact of climate change, the latter includes coastal and offshore installations such as power and water cogeneration facilities, and the oil & gas infrastructure. Moreover, the State's economy is also impacted by the response measures. In view of this, the international climate change measures and policies are guided by the provisions of the UNFCCC, particularly Article 3 paragraph 2 and Article 4 paragraph 8 (e & h) and Article 4 paragraph 10.3.

### **3. Economic Diversification with Mitigation Co-benefits**

Historically, Qatar's economy has been driven by the availability of hydrocarbon resources. However, to maintain development and sustainable growth, a national vision was adopted to diversify the economy and build a skilled society capable of sustaining its own development and ensuring a high living standard. Qatar's National Vision 2030 (QNV 2030) and Qatar's National Development Strategy (NDS-1 & NDS-2) lay a strong emphasis on economic diversification and sustainable development.

Some of the key areas for diversification with mitigation co-benefits are stated below:

#### **a) Oil & Gas**

The oil & gas sector constitutes the backbone of Qatar's economy. It encompasses the entire spectrum of the oil & gas value chain. This includes the exploration, production, processing, marketing and sales of oil & gas, liquefied natural gas (LNG), natural gas liquids (NGL), gas to liquids (GTL) products, refined products, petrochemicals, and fertilizers, steel and aluminum. The State has already initiated several measures to make its oil & gas sector more sustainable. The Al Shaheen flare reduction project (one of the world's largest) and the Jetty boil-off gas recovery project have laid solid foundations towards emission reduction.

The Al-Shaheen Oil Field Gas Recovery and Utilization Project has been registered as a Clean Development Mechanism (CDM) project since 2007 for 21 years within the framework of the Kyoto Protocol. The project received approval from the UNFCCC for the seven-year crediting period from 2014 to 2021, and it is expected to abate approximately 1.2 million tons of CO<sub>2</sub> each year during this period.

The national oil company, Qatar Petroleum (QP), is committed to zero routine flaring by 2030, with a long-term goal to reduce flaring in onshore facilities to the absolute minimum. Technically feasible non-routine flaring is also covered. Carbon capture storage (CCS) will be another pivotal measure for reducing the GHG emissions from the sector. Qatar commissioned the largest CO<sub>2</sub> recovery and sequestration facility in the MENA region at Ras Laffan in 2019 with a design capacity of 2.2 MTPA of CO<sub>2</sub> capture and storage. CCS is included for new LNG facilities and concepts, for remaining LNG facilities will be developed and implemented considering the economic, safety and environmental concerns.

QP signed a set of Guiding Principles on 22 March 2018 that aim to reduce methane emissions across the natural gas value chain stretching from production to the final consumer. The principles aim to continuously curb methane emissions, stimulate strong performance across gas value chains, enhance

the accuracy of methane emissions data, advance sound policies and regulations on methane emissions, and to increase transparency. In 2019, Qatar Petroleum introduced the smart leak detection and repair program (LDAR) in all upstream and downstream facilities of the oil & gas industry. Qatar further plans to move towards a fully integrated fugitive methane monitoring and repair program across all assets.

Qatar is enhancing energy efficiency in the oil & gas sector as a key measure to reduce GHG emissions. The energy efficiency program includes several projects that are allocated in upstream facilities as well as gas-to-liquid and downstream facilities. Amongst the variety of measures in energy efficiency, certain initiatives are aimed to be implemented by 2025, e.g., seasonal optimization of gas turbine generators and boilers, improved measurement / balancing for fuel gas / steam, and improved reliability of heat recovery steam generator (HRSGs). Furthermore, through innovative technologies and processes such as energy efficiency performance monitoring, improved reliability of waste heat recovery systems and recycling of excess fuel gas/off gas are also addressed. Qatar also plans to efficiently utilize its power plant capacities by usage in other upstream facilities or feed-in from GTL (gas-to-liquid) facilities to its utility distribution / transmission grid. Electrical generation capacity shall be shared and optimized across all upstream facilities. This would allow more efficient dispatch of generating capacity and keep the units closer to their most efficient operating levels, thereby reducing gas consumption and GHG emissions.

## **b) Power & Water**

Most of Qatar's power production comes from natural gas resources. Urban water supply is mostly drawn from sea water desalination facilities, often using energy-intensive technologies i.e. Multi-Stage Flash (MSF) & Reverse Osmosis (R/O) methods. Nevertheless, recently Qatar has made significant progress in reducing the emissions from the power & water sector, by introducing its first 800 MW solar power plant, which shall be operational soon. It is the goal of the State of Qatar to expand these efforts and transform renewable energy into a key driver for ecological and commercial benefits. However, renewable energy solar power projects are facing considerable technical challenges related to the arid and dusty climatic conditions, grid stability issues in the integration with the existing system, reliability, power quality & control issues, etc.

The National Program for Conservative & Efficient use of Water & Electricity (Tarsheed) has been successful in generating a lasting awareness over the issue of water and energy wastage, especially among the youth, and in reducing consumption of electricity & water per capita. It has ambitious aims for further reductions. Led by Qatar Foundation, Education City and the Qatar Green Building Council, efforts are being made to enhance the demand-side energy efficiency, energy savings, and local energy generation through rooftops solar panels. So far, the Tarsheed program has been successful in optimizing consumption of electricity & water and has ambitious aims for further reductions.

Energy efficiency measures such as district cooling and energy labeling for all electronic devices are systematically being deployed and play a growing role in the national economic diversification strategy by reducing energy intensity and the need for energy subsidies, while also mitigating the overall GHG emissions of households and small & medium enterprises. Qatar has implemented several specification improvement standards for electrical and electronic equipment such as air conditioners resulting in significant savings in electricity consumption. Parallel to the multitude of

energy conservation measures, Qatar has also introduced several water-conservation measures which will significantly improve the ecological footprint of the sector.

The initiative to phase out incandescent lamps and adoption of Energy Efficient lighting has contributed in a major way for conservation of Energy and thereby GHG emissions reduction in the State of Qatar.

Qatar is considered a pioneer in the field of district cooling (DC). District cooling relies on large-scale centralized cooling that provides a wide spectrum of savings in energy consumption and infrastructure. It consequently reduces impact on the environment. The DC system operations are essentially linked to the electricity and water consumption. The continuous improvements in both electricity and water management practices substantially contribute to the environmental sustainability of the receiving housing and public buildings.

Lastly, Qatar has continuously strived to upgrade its sewage treatment plants to produce treated effluents suitable for purposes such as landscaping, fodder crops irrigation, district cooling, construction industry use, etc.

### **c) Transportation**

The transportation sector in Qatar has been earmarked for rapid modernization. The Doha Metro and Lusail Tram are major milestones in the development of public transportation and subsequent reduction of emissions from this sector. The level 3 accreditation status for Hamad International Airport is another major initiative towards sustainability. The country has also taken significant strides to adopt electrification of on-road vehicles by committing to electrify its public transport system and investing in installation of charging infrastructure across the country.

Transition from ICE vehicles to EV and providing necessary infrastructure for EV chargers will contribute in a major way for GHG reduction and thereby NDC goals. Electrification has also been adopted in port operations e.g. reducing emissions at Hamad port using electric tractors. Going forward, gradual adoption of Euro 6 emission standards for vehicles and promoting a shift towards electric vehicles for private use shall constitute key initiatives to reduce emissions from the transportation sector.

### **d) Building, Construction & Industry**

Qatar has been transforming its building standards towards higher sustainability levels through the adoption of the Global Sustainability Assessment System (GSAS) standards. The number of projects registered for GSAS certifications has been rapidly increasing thereby facilitating the transition towards green buildings. The Qatar Green Building Council has been advising hotels on higher environmental standards for energy and water savings, and has certified an increasing number of hotels, in line with the new hotel classification system implemented by the Qatar Tourism Authority (QTA) which has set new and higher sustainability standard.

Hamad International airport is another success example of the recent GSAS implementation initiative. In its plans for the second expansion phase, the terminal building will be the first airport in the MENA region to achieve a 4-star Global Sustainability Assessment System (GSAS) rating, which is the first performance-based system in the MENA region, developed for rating the green buildings and

infrastructures. The terminal will also be a LEED Silver certified building with innovative measures of energy efficiency across the entire building.

A steadily growing number of projects to install solar panels on residential buildings are being undertaken by the private sector. Qatar plans to promote decentralized renewable energy production and use in buildings while also making more efficient their energy consumption. The ongoing development of Lusail city is Qatar's main initiative concerning smart and sustainable cities with centralized water, cooling, waste, and transport systems as well as solar energy production.

Qatar has been making a steady progress towards attaining circular economy in the construction sector by implementing recycling and re-using construction waste and the government further plans to explore the use of environment friendly battery-powered generators for construction activities.

### **e) Research and Development**

Research and development initiatives in climate change in Qatar are conducted by a number of universities and institutions. Qatar University (QU), the nation's first university, has been doing its fair share in the field of environmental science & sustainable development. QU established the Environmental Science Center (ESC) in 1980 for preserving its rich marine and terrestrial biodiversity & cultural heritage. QU also has the Center for Sustainable Development (CSD) which focuses on research related to Food and Water Security, Renewable Energy, Natural Resource Governance, Algal Technologies, and Waste Management. Equally, QU has a rich undergraduate and graduate program covering environmental science and engineering in addition to sustainable development. Most recently, the University established its academic publishing house, namely the QU Press, which also signed the UN's SDG Publishers Compact. QU Press puts the subject of environment among its priority publishing programs.

Similar research activities are also conducted at Hamad Bin Khalifa University & its affiliated research institute, Qatar Environment and Energy Research Institute (QEERI), has released the first Qatar Solar Atlas, a tool that quantifies the country's solar resource and geographical distribution as a first step towards accelerating the use of more solar energy across the country. In addition, the recent Air Quality Index and Inhalable Particulates Index to provide the local population with information on gas and particulate emissions in Qatar. Partnered efforts, with international research centers, are being made to develop economic ways of harnessing solar energy through both fundamental and applied research on materials.

The Qatar Research, Development and Innovation Council (QRDI) focuses on key topics of sustainability in Qatar's energy sector and in management of environmental, food and water resources. Meanwhile, the Qatar National Research Fund (QNRF) is funding research for an efficient carbon management system at the national scale.

The R&D stakeholders (universities, research institutes and private labs) are equally playing a vital role in spreading awareness on the topic of economic diversification by dedicating efforts to relevant research projects and prioritizing research topics, such as the development of the energy, water and food nexus economy.

## **f) Education**

Educational institutions are a key player in the steering and implementation of the national long-term climate change strategies via research, technology development, policies and regulatory frameworks, monitoring, measurements, evaluation, and incentive schemes. Education and awareness are key to changing the ongoing practices, fight climate change, adapt to it, and attract new talents.

Since 1994, the Ministry of Education and Higher Education has introduced the “Eco School programs” initiative which promotes environmental education and awareness in primary and secondary levels. This is realized through parts of the curriculum covering climate change in combination with extracurricular activities. Building upon this legacy, the Ministry has also established a committee for sustainable development to enhance all activities in this sphere and address climate change through education.

On a more applied level, the state of Qatar is eager to foster climate change education throughout the daily routines of educational institutions. This is illustrated by the plan for enhancing teachers’ training on climate change topics in order to enable educators to present the topics of sustainability and environmental development in an appealing manner to students, and to foster behavioral changes in the long-term.

Also, all major university campuses in Qatar feature solar panels on building rooftops and policies to reduce energy consumption.

Qatar Foundation (QF) is developing green campus and housing facilities which have a direct impact on the ecological footprint of facilities and additionally increases awareness and consciousness of students. Further projects include initiatives such as awareness campaigns advocating for banning single-use plastics in society and annual collection campaigns. By means of initiatives like these, the State of Qatar is developing a generation that is aware of climate change and capable of limiting its own carbon footprint and to develop sustainable countermeasures. Also, the Education City in QF, which is an extensive campus with a world class national library, several branches of leading international universities, schools and research centers, has been developing a strategy to implement solutions for a more sustainable educational complex. The Education City tram, for instance, now connects 24 designated tram stations across 11.5 km and runs on hybrid energy storage (HES).

Moreover, non-educational institutions, such as the Supreme Committee for Delivery and Legacy (SC) and Kahramaa, play an active role in spreading awareness and raising the level of responsibility about climate change and matters related to it within the community, with a strong focus on youth.

## **g) Tourism**

Tourism is another key sector identified by Qatar to diversify its economy beyond the oil & gas sector and increase private sector participation in the national economy. Qatar’s long-term strategy to develop tourism in the country has already yielded dividends with increases in the number of tourists in the country from all over the world. The development of the country’s first eco-resorts and major events like the FIFA World Cup 2022 and the Asian Games 2030 are set to further enhance the touristic appeal of the country while driving its socio-economic growth in a sustainable manner. Qatar’s tourism strategy promotes sustainable tourism and aims to reduce dependence on hydrocarbon resources for economic growth.



## 4. Adaptation actions with Mitigation Co-benefits

### a) Water Management

Qatar depends mostly on seawater desalination for urban water supply, often using energy-intensive technologies. In the future, it is essential to reduce the consumption of both power and water per capita and use less energy-intensive technologies throughout the entire value stream.

Qatar has also introduced several water-conservation measures which will significantly improve the ecological footprint of the sector. Most initiatives were started in 2015 and are ongoing, therefore considerable savings have been achieved, which will continue to improve the ecological footprint of the country.

Besides the implementation of a new and ambitious water conservation regulation, several other measures have been started, e.g., increasing awareness via messages to residential customers with high consumption, retrofitting and replacing aerators in governmental facilities and switching to treated sewage effluent (TSE) for irrigation in parks. Additionally, savings are increasingly made by using recycled water in district cooling, the construction industry, and for a growing number of other usages.

Efficient water management is a key adaptation measure. Therefore, Qatar has also invested significantly in this field. As a result, treated sewage effluent (TSE) volume in 2015 amounted to 194 million cubic meters or around 98.2% of total wastewater. Nearly 66 million m<sup>3</sup> were used in agriculture, around 31 million m<sup>3</sup> in the irrigation of green landscapes and public parks, and about 57 million m<sup>3</sup> in deep injection into the non-freshwater aquifer.

Moreover, as part of the development of Qatar's Water Plan and Strategy, the National Water Policy was developed as the draft of the National Water Law and its executive by-law have been finalized. Furthermore, a draft law to regulate groundwater wells drilling has been completed.

On biodiversity, Qatar is restoring marine habitats, particularly growing mangrove trees, and planting indigenous trees in urban areas and hence increasing the potential for carbon sequestration.

### b) Infrastructure

Qatar has committed itself to formulating a comprehensive urban development plan and a sustainable urbanization and population distribution policy. The plan, which comprises detailed strategies and operational aspects, is guided by the National Vision 2030 as a general framework.

The potential impacts of climate change on the Qatari coastal zone areas is currently being studied. A detailed analysis is carried out combining climate information based on historical trends for short-term time horizons and projections of mean sea level rise by the end of the century. Sea level rise is considered the main driver of change but not the only one in the analysis. The results of the impacts of climate change along the Qatari coast for the horizon years 2040 and 2100 is based on the analysis of the future changes of several coastal impact indicators.

The adaptation studies focused on identifying the most relevant socio-economic systems, natural ecosystems, and the most pertinent coastal impacts affecting the identified systems. Also, the evaluation of the coastal impact indicators, and ranking of the values in four levels (negligible, low,

medium and high), based on a threshold of future changes previously defined are conducted.

The principal impacts considered to affect the systems above are flooding, erosion, port operations, structural reliability, and coral bleaching. The drivers responsible for these impacts are changes in waves, storm surge, mean sea level, wind intensity, and sea surface temperatures.

In addition, the National Development Strategy-1 (NDS-1) (2011-2016) provided a more detailed perspective and promoted an efficient economic and technical use of natural resources, provision of infrastructure services, and enhancement of market efficiency. The NDS-2 (2018-2022) was created to build upon the achievements of NDS-1, particularly with regards to the infrastructure development sector, storage, sanitation and treated wastewater networks, information and communication technology (ICT), construction materials, logistics, and construction.

The State of Qatar has undertaken/planned several projects to enhance the overall infrastructure in the country with a strong focus on sustainability. Besides the sustainable stadiums being developed for the FIFA World Cup 2022, several other projects such as the Qatar integrated rail project, expressway program, roads and drainage program, development of sustainable residential complexes (Lusail city, Msheireb downtown), development of parking bays, inter alia hold key to Qatar's plans of sustainable infrastructure development.

### **c) Awareness**

Raising awareness is important for the creation of a shared understanding which is required to effectively rally resources and stakeholders for joint problem-solving. Traditional methods such as media campaigns will be used to spark attention and broad engagement initiatives will be applied to anchor the topic of climate change deeper in society.

Many institutions in the community have been advocating for the topic of climate change by organizing and contributing to the establishment of periodic events. The biannual WISH conference, organized by Qatar Foundation, for example, fosters educated dialogue about health-related topics, where climate change effects are a central focus. Other institutions like Hamad Bin Khalifa University and Texas A&M University have also organized events including "12<sup>th</sup> International Exergy, Energy and Environment Symposium (IEEES-12)" and "Energy Education of the Future Forum" where multidisciplinary discussions are encouraged to put in play perspectives related to sustainability focused topics: Oil & gas Technologies, Smart Grids, Green and Electrified Transportation, Alternative and Clean Fuels, Hydrogen and Fuel Cell Technologies, Desalination Technologies, Sustainable Agriculture, Waste Water Treatment and Environmental Technologies, etc.

To target behavioral changes in the community by raising awareness about climate change, institutions like Qatar Foundation, for example, are initiating regular practices that encourage the adoption of more sustainable habits. The Foundation has established campaigns like, the "think before you print," "save at your desk," and "Paperless office," that encourage employees on changing printers' settings to minimize waste and incentivize users to further reduce the energy consumption.

The TARSHEED Community awareness activities focuses on various conservation campaigns and basic training at school level, along with the KAHRAMAA awareness park for general public, is aimed to illustrate to the community the importance of sustainable development, and for inception of ideas for younger generation for behavioral changes

Other organizations like the Qatar Green Building Council (QGBC) has established a project under the name of “no paper day” in 2013, that aims to encourage the local community to adopt eco-friendly initiatives geared at reducing waste nationwide and to remind the public that reducing the use of Qatar’s resources not only can improve business efficiency, but also help to preserve the environment’s long-term health. The initiative is part of QGBC’s efforts to help schools, companies, and institutions, find ways to reduce paper, plastic and metal consumption, engage the wider community in environmentally friendly practices, and raise sustainability awareness.

#### **d) Food Security**

Qatar has launched a robust national food security strategy to optimize the use of the country’s agricultural land and water resources and insulate domestic food needs from external shocks. This is increasingly important especially as rising weather-related disasters could disrupt the yields and provision of major crops, impacting Qatar’s already challenging agriculture landscape. The strategy focuses on four pillars of enhancing international trade and logistics, increasing domestic self-sufficiency in some niches, building strategic reserves and enhancing domestic markets.

Under the first pillar of international trade and logistics, Qatar is geographically diversifying trade partners for critical commodities to reduce exposure to external shocks. In addition, Qatar has also proactively put in place contingency plans to limit impacts of trade shocks or other exogenous disruptions.

Qatar has also made huge strides to increase the domestic self-sufficiency of its vegetables, red meat and fisheries production, as well as reducing groundwater-based fodder production. For vegetables production, it has plans to develop its hydroponics greenhouse cluster to reach 70% self-sufficiency on greenhouse vegetables and has launched multiple programs and subsidies towards greenhouse production. Such initiatives will not only ensure that the country is well adapted to potential shocks, but also contribute towards more sustainable agriculture practices including better optimization of agrochemicals usage and water efficiency. This should also help decrease the transportation CO<sub>2</sub> footprint of the food offered in the country.

Qatar also plans to put in place adequate reserves, including perishables, selected non-perishables, potable water and groundwater reserves to buffer against potential production disruptions. Lastly, it is also building transparency and efficiency in its domestic market through farmer support programs, food waste programs and food standards governance initiatives.

## **5. Response Measures**

Due to its dependence on oil & gas export revenue, there is a potential adverse impact to Qatar’s economy, population welfare & the quality of life, resulting from implementation of response measures to climate change by developed countries. This is particularly true if such measures & policies affect international trade. In view of this, Article 4.10 of the Convention stipulates that due care must be taken by developed countries in the implementation of the commitments, particularly for those developing country Parties, with vulnerable economies that are prone to the adverse effects of the implementation measures. This applies notably to developing Parties like Qatar with economies that are highly dependent on income generated from the production, processing and export, and/or consumption of fossil fuels and associated energy-intensive products. Qatar’s developing economy requires various

forms of international cooperation in this regard to achieve the goals and objectives of sustainable development in line with the principles and provisions of the Convention, particularly, Article 4.8 (e & h) & Article 4.10.

## **6. Timeframe**

The intended voluntary contributions in this report tend to cover the period 2021 to 2030 in line with Qatar's National Vision (QNV 2030). The target is defined as a single year target for 2030.

## **7. Monitoring and Reporting Progress**

Governed by the MME Climate Change Department, the National Measurement, Reporting and Verification (MRV) System will be designed to measure and validate progress towards the commitments made in this NDC, using verified sector specific MRV communications prepared by the national stakeholders. Effective MRV processes are key to guarantee best practice accounting, transparency, precision and comparability on climate change information. The three pillars of Qatar's MRV process are as follows:

Measurement requires the derivation of data for a national GHG inventory and estimation of national GHG emissions through both direct measurement using devices, complemented by calculations and estimates. In order to ensure high quality of the data, all calculations will follow strict guidance using IPCC guidelines for National GHG inventories.

Reporting refers to compilation of required reports, submission to respective stakeholders (i.e. UNFCCC) and preparation of the necessary documentation of measurement results to inform all interested parties. In order to achieve a high level of transparency, the reporting does not only include results but also methodologies, assumptions and data.

Verification is essential for a thorough MRV process and incorporates review and validation of the generated data and reports by third party accredited entities to ensure the quality of measurement and reporting. Review will be conducted, and findings will be incorporated into the MRV process to ensure continuous improvement.

## **8. Means of Implementation**

Qatar is already facing challenges of climate change, experiencing extreme climate conditions and events. The country welcomes technical assistance and capacity building designed for developing country Parties under the Convention. The international community's efforts to transfer and deploy advanced sustainable development technologies are crucial to mitigate GHG emissions and enhance adaptive capacities. Qatar supports the development and operationalization of Article 6 of the Paris Agreement to serve as a driver for sustainable development.

International cooperation in renewable energy systems, downstream specialty-chemicals, hydrogen fuels and technologies, energy efficiency technologies, waste management, sustainable agriculture

and national policies and measures are vital for the implementation of the Paris Agreement.

## **9. Fairness and Ambition**

This NDC is based on the provisions and principles of the Convention in particular Article 3 paragraph 2, Article 4 paragraph 1, paragraph 8 (e & h), and paragraph 10.

All national actions and plans described in this NDC are voluntary and the means of implementation and support will be in accordance with the principles and provisions of the United Nations Framework Convention on Climate Change Articles 4.7, 12.4.

Qatar's commitments are in line with the requirements set forth in Articles 4.3 and 4.4 of the Paris Agreement and Decision 1/CP.21. To the relevant extent, this submission considers guidance set forth in Decision 4/CMA.1. In keeping with Article 2 of the United Nations Framework Convention on Climate Change and Article 4.1 of the Paris Agreement, Qatar will continue to explore pathways to further enhance its emission reduction objectives in line with climate science and global ambition.

Qatar reserves the right to further elaborate and update this NDC in line with its special national circumstances and sustainable development imperatives with a view to avoid the adverse effects of economic and social consequences of response measures.