



# FACILITATIVE SHARING OF VIEWS

## TENTH WORKSHOP

### STATE OF KUWAIT

June-2021



## Presentation outline

- ❖ Institutional arrangements, national climate plan
- ❖ GHG inventory
- ❖ Mitigation actions and effect
- ❖ Barriers and support needed and received
- ❖ Transition to ETF



## National context

### National Institutional Arrangements Relevant to the Implementation of Climate Change Actions

The institutional structure of climate change in the State of Kuwait falls within the framework of an institutional system starting from the First Deputy Prime Minister of Kuwait who in turn chairs the Supreme Council of Environment, where the Environment Public Authority is among the members of that council.





# National context

The Kuwait Environment Public Authority (KEPA) is the **National Focal Point** for the United Nation Framework Convention of Climate Change (UNFCCC). The Climate Change Section is a unit of the Air Quality Monitoring Department and is the implementing entity of the UNFCCC in the State of Kuwait. The two major responsibilities of the Climate Change Section are as follows:





# National context

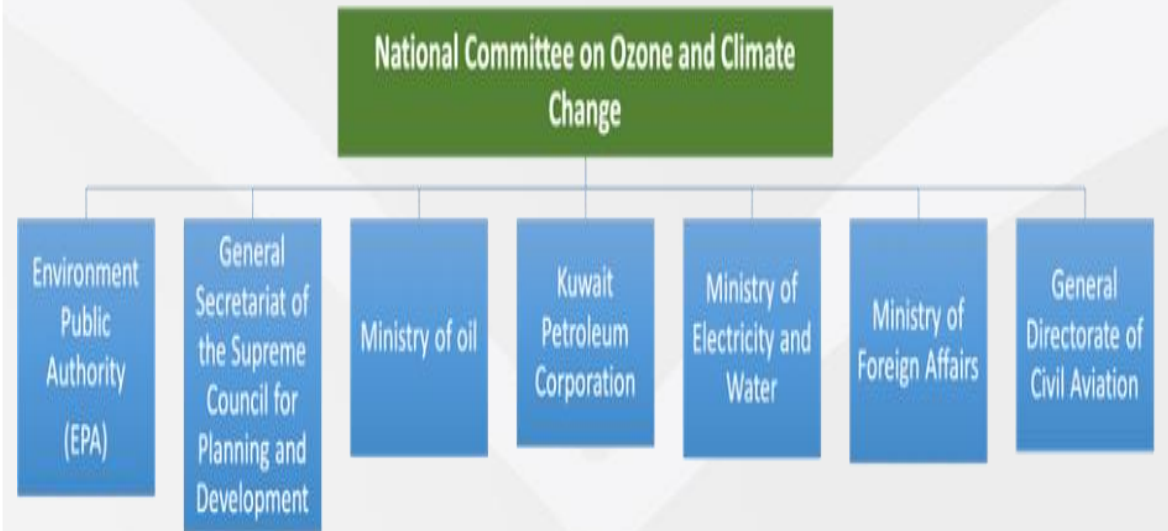
- Leading the negotiating team, which includes all the state stakeholders concerned with climate change; and
- Managing the reporting system such as Nationally Determined Contributions (NDCs), National Communications (NCs) & Biennial Update Reports (BURs).





# National context

To facilitate climate change activities, the **National Committee on Ozone and Climate Change (NCOCC)** was established, chaired by the Environment Public Authority, with representatives from the General Secretariat of the Supreme Council for Planning and Development, Ministry of Oil, Kuwait Petroleum Corporation, Ministry of Electricity and Water, Ministry of Foreign Affairs, and General Directorate of Civil Aviation, as members.





# National context

The **National Committee on Ozone and Climate Change** subsequently established the **Climate Change Negotiation Group Committee (CCNGC)** to handle climate change negotiations





## National Institutional Arrangements Relevant to UNFCCC National Reporting

The knowledge developed during the preparation of Kuwait's Initial National Communication (INC) was utilized to build up the organizational and technical structure of the Second National Communication (SNC) and first Biennial Updated Reports (BUR). The capacity was built up by engaging and training key stakeholders, namely KEPA technical staff, public sector staff, and civil society stakeholders





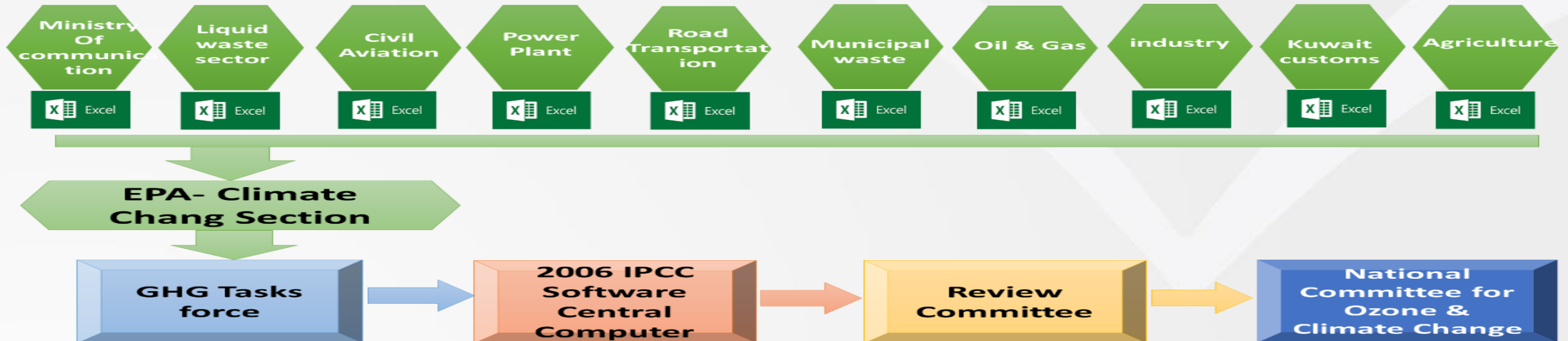
## Current Domestic MRV Framework

Greenhouse gas emissions-related data are requested by official letters from EPA to different entities and then collected on excel sheets either as a hard copy or by emails. The Climate Change Section then distributes the collected data to the GHG task force for evaluation and uploading into the IPCC 2006 Software. A review committee was established by expert members from Kuwait University, Kuwait Institute for Scientific Research (KISR) and Kuwait Foundation for the Advancement of Sciences (KFAS) in order to ensure that all requirements are fulfilled and to approve the output results.



# Current Domestic MRV Framework

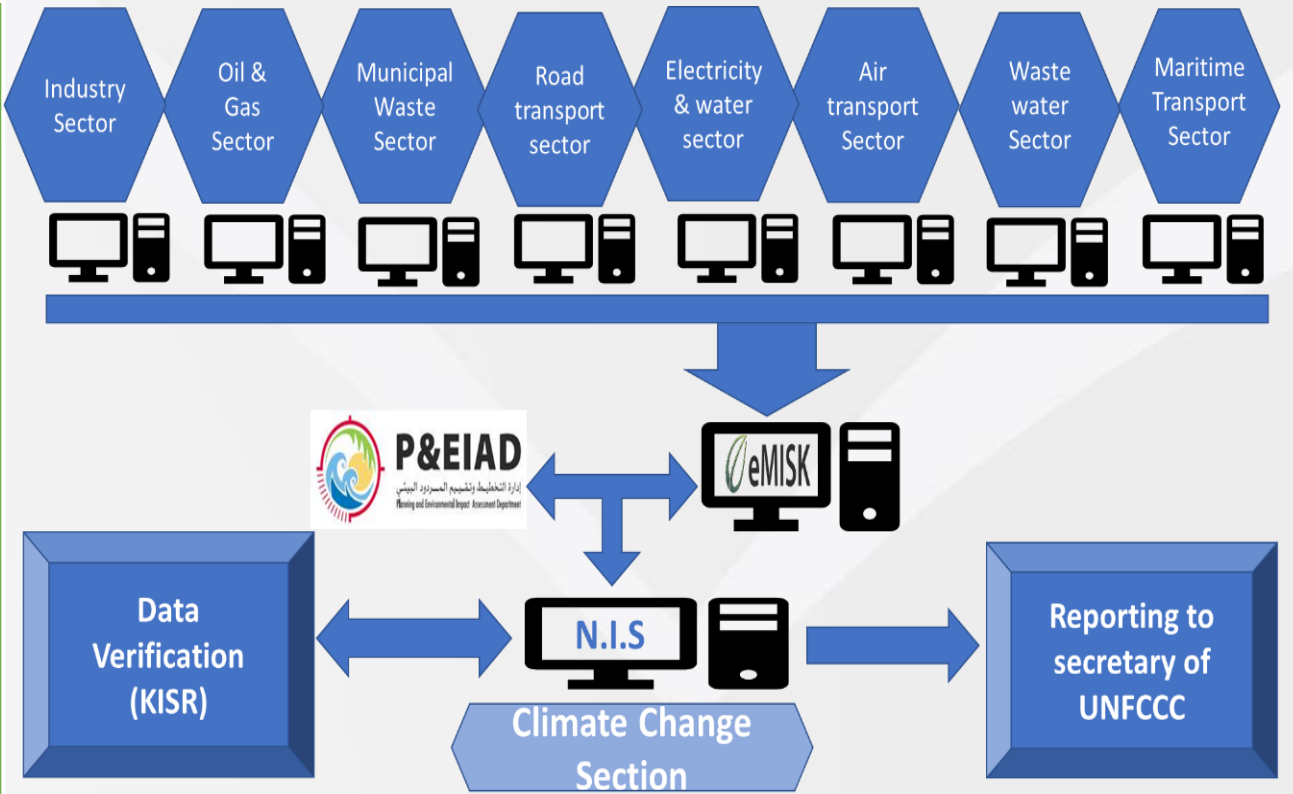
A higher **National Committee for Ozone and Climate Change** presided by the General Director of KEPA, with members that are the assistant undersecretaries from various stakeholders will give the final approval for the results to be published





# Domestic MRV Framework from 2020

Beginning in 2020, it is envisioned that an electronic online-based emissions measurement and reporting system will be operational. This system will allow agencies covering different economic sectors from which emissions come to input emissions data into the eMISK system for integration into the **National Inventory System (NIS)** that is run by the KEPA Climate Change Section. This will facilitate and make it easier for national GHG inventories to be generated.





# Main national climate plan - NDC

According to the decision of the Twenty-first Conference of the Parties held in the French capital Paris 1 / 21.CP Paragraph 23 and 24, the countries required to update their contributions by 2020 are the countries that have submitted their contributions within a time frame until 2025 or 2030 and since the State of Kuwait has submitted its contributions in 2015 within a time frame until 2035, it is in accordance with For this decision it will not update its NDCs for this year

Currently, Kuwait is working on preparing a low carbon strategy and on this basis the NDC will be updated to be submitted in 2025



## Intended Nationally Determined Contributions

The State of Kuwait - November 2015

### Objective:

In accordance with Decision 1/CP.19 and based on the information mentioned in decision 1/CP.20 which invites all parties to submit their Intended Nationally Determined Contributions for the period post-2020. Kuwait prepared and submitted this document to join the world countries the march of limiting climate change based on its sustainable development plans and programs at the national level until 2035.

The State of Kuwait is seeking to adapt with the negative impacts and consequences of climate change. Also it's working towards moving to a low carbon equivalent emissions economy system based on its future business as usual emissions over the period 2020-2030. Through its efforts to achieve developmental, environmental, social and economic priorities under the framework of sustainable development. Therefore, the State of Kuwait attaches a great importance on diversifying the sources of energy production in the country, which contributes in avoiding the increase of greenhouse gases emissions by 2035.

### Introduction

The State of Kuwait is considered one of the first countries to sign the United Nations Framework Convention on Climate Change; it joined the Convention on 28 Dec. 1994 and entered into force on 28 Mar. 1995, and the state of Kuwait ratified Kyoto Protocol under the United Nations Framework Convention on Climate Change on 11 Mar. 2005, and entered into force on 9 Jun. 2005. The State of Kuwait shares the concerns of the international community in limiting the negative impacts of climate change, it recognizes that the global nature of climate change calls for maximum cooperation and participation in an effective international response in implementing the terms of the United Nations Framework Convention on climate change (UNFCCC) from all countries of the world in accordance with common but differentiated responsibilities as stated in Article 4 paragraph 1, which says: "All



## GHG inventory

Total GHG emissions and sinks for the year 2016. Total and net GHG emissions in 2016 were 86,336.448 Gg CO<sub>2</sub>-equivalent, which includes 82,556.572 Gg from energy; 1,932.156 Gg from industrial processes and product use; 154.371 Gg from agriculture, -13.190 from forestry and other land use and 1,706.539 Gg from waste. Emissions from perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulfur hexafluoride (SF<sub>6</sub>) in Kuwait are negligible as the products containing these gases are not produced in the country.

GHG Sources & Sinks		CO <sub>2</sub> -equiv	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
1	Energy	82556.572	81985.033	10.919	1.104
2	Industrial processes and product use	1932.156	1932.156	0.0	0.0
3	Agriculture	154.371	2.761	6.570	0.044
4	Forestry & other Land Use	-13.190	-13.190	0.0	0.0
5	Waste	1706.539	4.172	77.847	0.218
<b>Total National Emissions</b>		<b>86349.638</b>	<b>83924.122</b>	<b>95.336</b>	<b>1.366</b>
<b>Net National Emissions</b>		<b>86336.448</b>	<b>83910.932</b>	<b>95.336</b>	<b>1.366</b>



# GHG inventory

The trend in total GHG emissions for the previous 1994 and 2000 inventory and the GHG inventory for the year 2016, per sector. Over the 1994-2016 period, total emissions have increased by about 139%; from 36211 Gg CO<sub>2</sub>-equivalent in 1994, 48678 Gg CO<sub>2</sub>-equivalent in 2000, to 86,336 Gg CO<sub>2</sub>-equivalent in 2016, or roughly 4 %/year. By 2016, national emissions reached 86,336.448 Gg CO<sub>2</sub>-equivalent

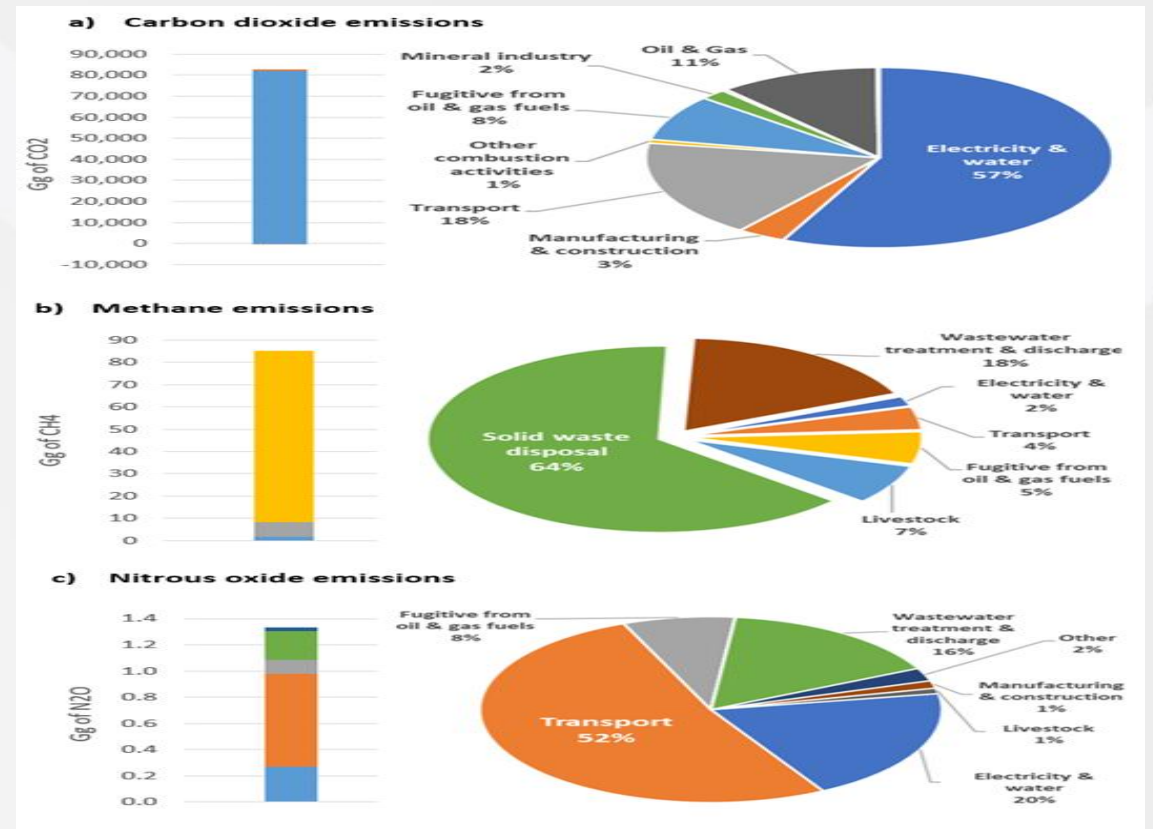
Year	1994	2000	2016	Percentage change between 1994 and 2016
Gas	Gg CO <sub>2</sub> -eq			
CO <sub>2</sub>	35080.2246	47056.2092	83910.932	139.2%
CH <sub>4</sub>	46.8417	66.6204	95.336	103.53%
N <sub>2</sub> O	0.4753	0.7205	1.366	187.4%
<b>Total (Gg CO<sub>2</sub>-eq)</b>	<b>36211.2433</b>	<b>48678.5926</b>	<b>86336.448</b>	138.42%

Year	1994	2000	2016	Percentage change between 1994 and 2016
Sectors	Gg CO <sub>2</sub> -eq			
Energy	34345.0576	46533.4226	82556.572	140.37%
Industrial Processes and Product Use	1022.3166	873.3267	1932.156	88.997%
Agriculture, forestry and other land use	40.512	101.2701	141.181	248.49%
Waste	803.3571	1170.5732	1706.539	112.426%
<b>Total</b>	<b>36211.2433</b>	<b>48678.5926</b>	<b>86336.448</b>	138.424%



# GHG inventory

- CO<sub>2</sub>**: Net CO<sub>2</sub> emissions were estimated to be 83910.932 Gg, or 97.2 % of Kuwait's total greenhouse emissions in the year 2016.
- CH<sub>4</sub>**: Methane had the second largest share of greenhouse gas emissions. Total CH<sub>4</sub> emissions were estimated to be about 95.336 Gg or about 2.3 % of Kuwait's total greenhouse emissions on a CO<sub>2</sub>-equivalent basis.
- N<sub>2</sub>O**: Nitrous oxide emissions were very small compared to other GHGs. Total N<sub>2</sub>O emissions were estimated to be only about 1.366 Gg or about 0.5 % of Kuwait's total greenhouse emissions on a CO<sub>2</sub>-equivalent basis.



# Mitigation actions and effects

National Appropriate Mitigation Actions was presented:

Table 2-11: National Appropriate Mitigation Actions

No.	Title	Description	Start Year	Coverage (i.e. sectors & gases)	Objectives	Result Achieved -Estimated Outcomes & Estimated Emission Reduction	Cost (US Dollar)	Use of International Market Mechanisms
1	Flare Gas Recovery at the Mina Al Ahmadi Refinery	The project involves the installation of a Flare Gas Recovery Unit (FGRU) to recover gases for subsequent commercial uses. This project registered as a CDM project.	2012	This project covers the energy sector, and the gases CH <sub>4</sub> , CO <sub>2</sub> , N <sub>2</sub> O, as well as NO <sub>x</sub> , NMVOCs, CO, and SO <sub>2</sub>	This project aims to recover gases that are currently flared at MAA refinery operated by KNPC. Avoiding burning such gasses will reduce the release of GHG emissions	Annual GHG emission reductions are about 54.4 Gg	\$36,436,050	NO
2	Flare Gas Recovery at the Mina Abdullah Refinery	The project involves the installation of an FGRU to first cool and then compress the recovered gases. After the cooling and compression steps, the gases are treated in an amine absorber to remove hydrogen sulfide and then reused for thermal heat generation. This project registered as a CDM project.	2012	This project covers the energy sector, and the gases CH <sub>4</sub> , CO <sub>2</sub> , N <sub>2</sub> O, as well as NO <sub>x</sub> , NMVOCs, CO, and SO <sub>2</sub>	This project aims to recover gases that are currently flared at MAB refinery operated by KNPC. Avoiding burning such gasses will reduce the release of GHG emissions	Annual GHG emission reductions are about 89.5 Gg	\$67,322,831	NO
3	Solar Photovoltaics	This project introduces a 10 MW solar photovoltaic farm in western Kuwait partially meet electricity demand at 29 oil wells and related infrastructure in the region. This project registered as a CDM project.	2015	The project covers the energy sector, and the gases CH <sub>4</sub> , CO <sub>2</sub> , N <sub>2</sub> O, as well as NO <sub>x</sub> , NMVOCs, CO, and SO <sub>2</sub>	TO lower the demand load on the central grid, leading to lower use of oil and gas for energy production and thereby leading to reduction on GHG emissions from the oil and gas sector for energy production	Annual GHG emission reductions are about 13.7 Gg	\$23,035,461.89	NO
4	Improved Electric Distribution Efficiency	This project introduces capacitor bank technologies at various 11/0.433 KV implemented on 632 transformers substations to improve the power factor in the electric distribution system. This project registered as a CDM project.	2015	This project covers the energy sector, and the gases CH <sub>4</sub> , CO <sub>2</sub> ,	Improved electric distribution efficiency lowers the cost of electricity leakage, thereby reducing demand on primary electricity	Annual GHG emission reductions are about 112.7 Gg	\$21.620426.37	NO



## National Appropriate Mitigation Actions was presented:

No.	Title	Description	Start Year	Coverage (i.e. sectors & gases)	Objectives	Result Achieved -Estimated Outcomes & Estimated Emission Reduction	Cost (US Dollar)	Use of International Market Mechanisms
5	Expansion of Improved Electric Distribution Efficiency - Phase 2	This project introduces capacitor bank technologies at various 11/0.415 KV substations implemented on 376 transformers to improve the power factor in the electric distribution system. This project in process to registered as a CDM project.	2019	N2O, as well as NOx, NMVOCs, CO, and SO2	production and subsequently lowering demand on the use of oil and gas for electricity production and leading to reduction on GHG emissions	Annual GHG emission reductions are about 219.762 Gg	\$15,171,000	NO
6	Expansion of Improved Electric Distribution Efficiency - Phase 3	This project introduces capacitor bank technologies at various 11/0.415 KV substations implemented on 610 to improve the power factor in the electric distribution system. This project in process to registered as a CDM project.	2020			Annual GHG emission reductions are about 351.791 Gg	\$13,084,000	NO
7	Expansion of Renewable-based Electricity Production - The Shagaya Renewable Energy 3 phase Master Plan	Phase I of the Plan introduces 70 MW of RE capacity, (50 MW of concentrated solar power, 10 MW of solar photovoltaics and 10 MW of wind), supervised by KISR	2018	This project covers the energy sector, and the gases CH4, CO2, N2O, as well as NOx, NMVOCs, CO, and SO2	To meet 15% of electricity requirements by renewable energy by 2030. the Plan will have introduced a total renewable energy capacity of 3,070 MW. Annual displacement of 12.5 million barrels of oil equivalent and hence, reduce emissions		\$581,151,808	Not CDM project
		Phase II introduces an additional 1,500 MW of solar photovoltaics supervised and funded by KNPC	2022			Annual GHG emission reductions are about 5000 Gg	\$1,711,218,141	Not CDM project
		Phase III of the Plan introduces an additional 200 MW of concentrated solar power, 1,200 MW of solar photovoltaics and 100 MW of wind supervised by KAPP	2030				To be determined	



## Mitigation actions and effects

### Future GHG Mitigation Opportunities

- **Power supply.** Supply side combustion efficiency can be increased by shifting from current technologies to combined cycle gas turbines and maximizing the use of reverse osmosis over multi-stage flash technology in seawater desalination. Moreover, emissions can be further decreased by fuel switching.

- **Transport.** There are several promising mitigation options for transport sector that are strategic for Kuwait. These include fuel efficiency improvements for vehicles, alternative clean fuel, transportation infrastructure improvement, as well as tariff and subsidy redistribution.



## Mitigation actions and effects

### Future GHG Mitigation Opportunities

- **Industry.** The industrial sector in Kuwait covers chemicals, manufacturing fertilizers, cement industry, metallic products and food processing. Waste heat recovery from industrial processes is an important GHG reduction measure. Furthermore, adoption of more advanced plants, technologies, and processes are effective mitigation options leading to reduced electricity demand.

- **Waste.** Mitigation options in waste sector are based on the objectives of the National Development Plan in improving the efficiency of waste management by developing a safe waste management system for Solid, liquid and hazardous waste encourage the rehabilitation of landfill and gas utilization. Currently there are several projects proposed in order to improve the efficiency of this sector



## Support received and needed (finance, technology, capacity building)

The state of Kuwait received financial support from Global Environment Facility (GEF) for preparing and communicating the reports. The technical support for these reports was provided by the Regional Office for West Asia of the United Nations Environment Programme (UNEP-ROWA). Some technical assistance has been used by UN programmes to improve and build capacity.

The State of Kuwait does not receive any financial support to implement any projects related to mitigation actions or adaptation projects, or any technical support from the financial funds under the Convention. Financing of mitigation and adaptation projects undertaken by the State of Kuwait on a voluntary basis from the State's own budget.



## Constraints

Several technical, institutional, legislative, and financial constraints across various levels have been identified hindering implementation of climate change adaptation and mitigation activities in Kuwait. The following bullets are examples of such constraints:

- **Lack of accurate data bases, and inadequate information and data collection.**
- **Weak cooperation arrangements between agencies for providing GHG inventory data.**
- **Lack of familiarity with current methods and tools for undertaking a quantification of climate change impacts in vulnerable sectors.**



## Needs

Several capacity development needs were identified during the process of preparing the SNC which are also applicable to the preparation of the BUR. The following are among the key needs:

- **Build public, and policy-maker awareness on climate change;**
- **Strengthen institutional and technical capacities through information and knowledge management;**
- **Enhance coordination among stakeholders at different levels, especially as it pertains to database development for future GHG inventories;**
- **Better integrate climate change considerations into national and sectoral development planning and policy dialogues.**



## Transition to ETF

The country's transition in preparing the national emissions inventory from the conventional system to the automated system (NIS), and Through the application of Article 116 of the Environmental Law Act 42 of 2014 and its amendments, which stipulate that "the Commission is committed to cooperating with the concerned authorities in the State to develop a national plan for environmental data management adopted by the Supreme Council. The Authority shall publish and make available data to the population in the State of Kuwait in a documented and transparent manner. The executive regulations of this law shall specify the types of data, the mechanism of its circulation and the responsibility of the entities thereof."

This will reinforce the principle of the transparency framework and speed up the process of preparing future national emissions inventories



The State of Kuwait received 14 questions from:

PARTY	No. of Q
United Kingdom of Great Britain and Northern Ireland	1
Australia	2
New Zealand	1
Japan	3
European Union	3
United States of America	4





## Response to questions received

Most of the questions to the State of Kuwait was displayed on the FSV portal was concerning to the mitigation measures and how to implement the future inquiries for follow-up of renewable energy projects, and how to build and developed its domestic human capital.

At the present time, the energy sector is considered the most important sector in the country, and it is worthwhile to work on mitigation measures in this sector, as the contribution of the energy sector constitutes approximately 70% of the total greenhouse gas emissions in the State of Kuwait, and Kuwait is embarking on new and important policies to enhance energy efficiency and pursue renewable energy projects. Where there are some projects on the table for discussion between the executive and legislative authorities in the use of clean energy to reduce emissions. Kuwait plans to build mitigation assessment capacity, especially those related to human resources. Additionally, in order to improve the quality of future mitigation assessments, there is an urgent need to develop a national database to monitor and report information on greenhouse gas emissions and mitigation projects.



We appreciate your kind attention

Thanks