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Ministry of Nature Protection of the Republic of Armenia

# Armenia's Second Biennial Update Report

## Armenia Numbers at a Glance for 2014

**10,450 Gg CO<sub>2eq</sub>\***  
Total GHG emissions

**7,012 Gg CO<sub>2eq</sub>**  
**(67.1% of total  
emissions)**  
Energy

**782 Gg CO<sub>2eq</sub>**  
**(7.5% of total  
emissions)**  
IPPU

**2,044 Gg CO<sub>2eq</sub>**  
**(19.6% of total  
emissions)**  
Agriculture

**611 Gg CO<sub>2eq</sub>**  
**(5.8% of total  
emissions)**  
Waste

**-15,320 Gg CO<sub>2eq</sub>\***  
**( - 59%)**  
Change in GHG  
emissions (1990-2014)

**4,150 Gg CO<sub>2eq</sub>\***  
**(65%)**  
Change in GHG  
emissions (2000-2014)

\* Without Forestry and Other  
Land Use

## Introduction

The Second Biennial Update Report (BUR2) of the Republic of Armenia is developed according to the United Nations Framework on Climate Change (UNFCCC) Decisions 1/CP.16 and 2/CP.17 and provides the updated information reported in the First Biennial Update Report on national circumstances, greenhouse gas inventory, progress in mitigation policies and actions, Measurement, reporting and verification system as well as on support received and needs. The Report also provides projections and assessment of Energy sector development scenarios up to 2030, considering that Energy is a strategic sector for the country and has the highest mitigation potential.

BUR2 along with National Inventory Report (NIR) 2014 was submitted to the UNFCCC on May 5, 2018.

## National GHG Inventory

The GHG inventory reported in the BUR2 covers the years 2013 and 2014 and was compiled according to the 2006 IPCC Guidelines. It covers emissions and removals of four direct GHGs – carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and hydrofluorocarbons (HFCs) – in a series of time 2000 – 2014.

The Armenia's total GHG emissions in 2014 amounted to 10,450.71 Gg CO<sub>2eq</sub>. and net emissions - 9,973.57 Gg CO<sub>2eq</sub>. The total GHG emissions were some 4 per cent (434.5 CO<sub>2eq</sub>) higher than those in 2012. This change is mainly due to the increase in F-gases emissions from refrigeration and cooling devices, increase in livestock populations and in emissions from managed soils attributed to fertilizer use.

The Energy Sector is by far the largest producer of GHG emissions, accounting for 67.1 per cent of Armenia's total emissions in 2014. The second-largest is the Agriculture Sector with an emission share of 19.6 per cent followed by the Industrial Processes and Product Use (IPPU) and Waste Sectors – 7.5 per cent and 5.8 per cent, respectively.

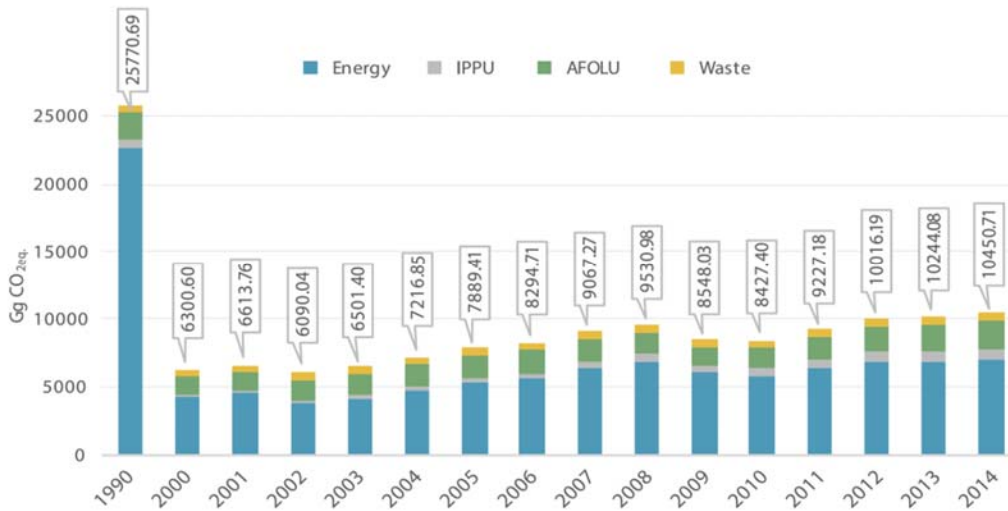
The most significant greenhouse gas of Armenia's inventory is CO<sub>2</sub>. Its share in the total emissions was 53.8 per cent in 2014. The Energy Sector was mainly responsible for CO<sub>2</sub> emissions – it produced about 95.5 per cent of all CO<sub>2</sub> emissions in 2014 because of the high emissions volume from the thermal power plants, Residential and Road transportation subsectors.

CH<sub>4</sub> emissions accounted for over 33 per cent of the total emissions in 2014. CH<sub>4</sub> emissions were also mostly from the Energy Sector (46.7 per cent) due to the fugitive emissions of the natural gas. The second one with its share of CH<sub>4</sub> emissions was the AFOLU Sector (37.8 per cent) due to the emissions from enteric fermentation.

N<sub>2</sub>O emissions accounted for nearly 8 per cent of the total emissions. Most of N<sub>2</sub>O emissions (88.6 per cent) were from the AFOLU Sector mainly due to the direct and indirect N<sub>2</sub>O emissions from managed soils.

F-gases (HFCs) accounted for roughly 5 per cent of the total GHG emissions, but their share has been growing continuously.

GHG emissions trend by sectors, 1990-2014



The figure highlights the absolute predominance of energy-related emissions, however there is 3.2 fold decrease as compared with the year 1990, while TPES decreased by 2.5 fold. It is an evidence of low-carbon development trends in Armenia. It is due to the structural changes in economy, i.e. decreased share of energy intensive industries and increased share of the service

sector, wide use of eco-friendly fuel – natural gas - for energy production (which replaced masut) and in transport, recommissioning of the Armenian Nuclear Power Plant and the strongest growth of the small hydropower plants which number has increased nearly eightfold since 2000.

The GHG emissions per unit of GDP in 2014 was **0.94 t CO<sub>2eq</sub>**. that shows a relatively stable level since 2010. However the per capita GHG emissions **3.31 t CO<sub>2eq</sub>**. shows slight increase resulted from the reduction of population.

### Mitigation Actions and Their Effects

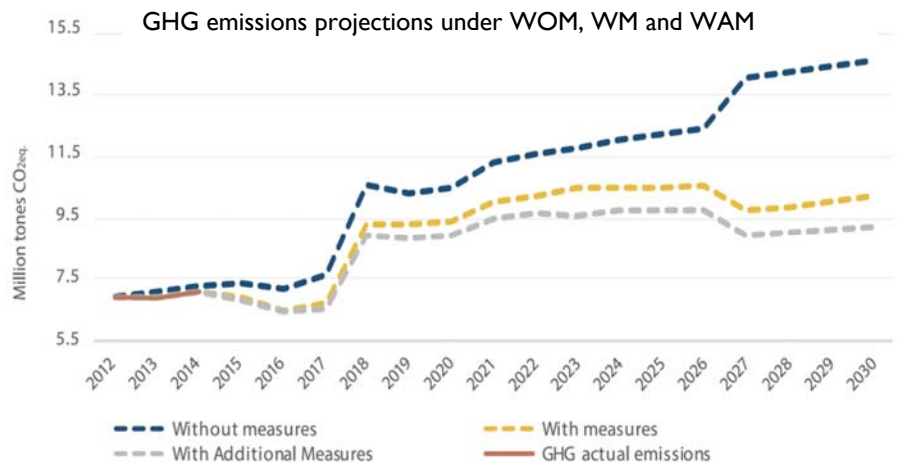
Climate change mitigation actions and polices and their effects have been assessed in different sectors for the years 2013-2016. The Energy sector predominates in the country’s total emissions with the highest mitigation potential, therefore, the Energy sector has been the focus for mitigation actions projections and their impact on GHG emissions and contribution to the country’s targets under NDC.

Following three scenarios have been considered applying LEAP Armenia model:

**Without measures (WOM)** scenario was considered to assess the GHG emissions growth risks in case of a delay of the new nuclear plant construction. Construction of new renewables is also not provided.

**With measures (WM)** scenario includes those mitigation actions which have already been started or planned for the nearest future with secured financing or which are priority projects in the sectoral strategic and planning documents.

**With additional measures (WAM)** scenario includes mitigation actions which are assessed and recommended but have not secured financing yet. These actions provide more ambitious development of renewable energy sources and enhanced implementation of energy efficiency measures. Hence, the actual mechanisms of implementing these measures are not defined yet; there is currently no progress in implementation of these measures, as well as no actual steps are taken or envisaged.



**2014 GDP energy intensity is 0.287 toel/thousand USD, showing a continuous downward trend since 2000. This trend will be maintained up to 2030 according to the projections due to mitigation measures.**

**2014 GHG emissions per unit of TPES are 2.2 t CO<sub>2eq</sub>./toe, showing a relatively stable level since 2010.**