Armenia's First Biennial Update Report

Facilitative Sharing of Views

Ministry of Nature Protection of the Republic of Armenia

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Bonn, November 10, 2017

Armenia At-A-Glance

Mountainous landlocked country of 29,743 km^2 in the Southern Caucasus region of Eurasia

Population – 3,027 thousand, 2012

Urban population – 63.4%

National circumstances

- **Highly variable rather dry climate**
- **Average annual ambient air temperature 5,5^{0}C**

  Recorded highest temperature: 43,7^{0}C

  Recorded lowest temperature: -42^{0}C
- **Development constraints:**

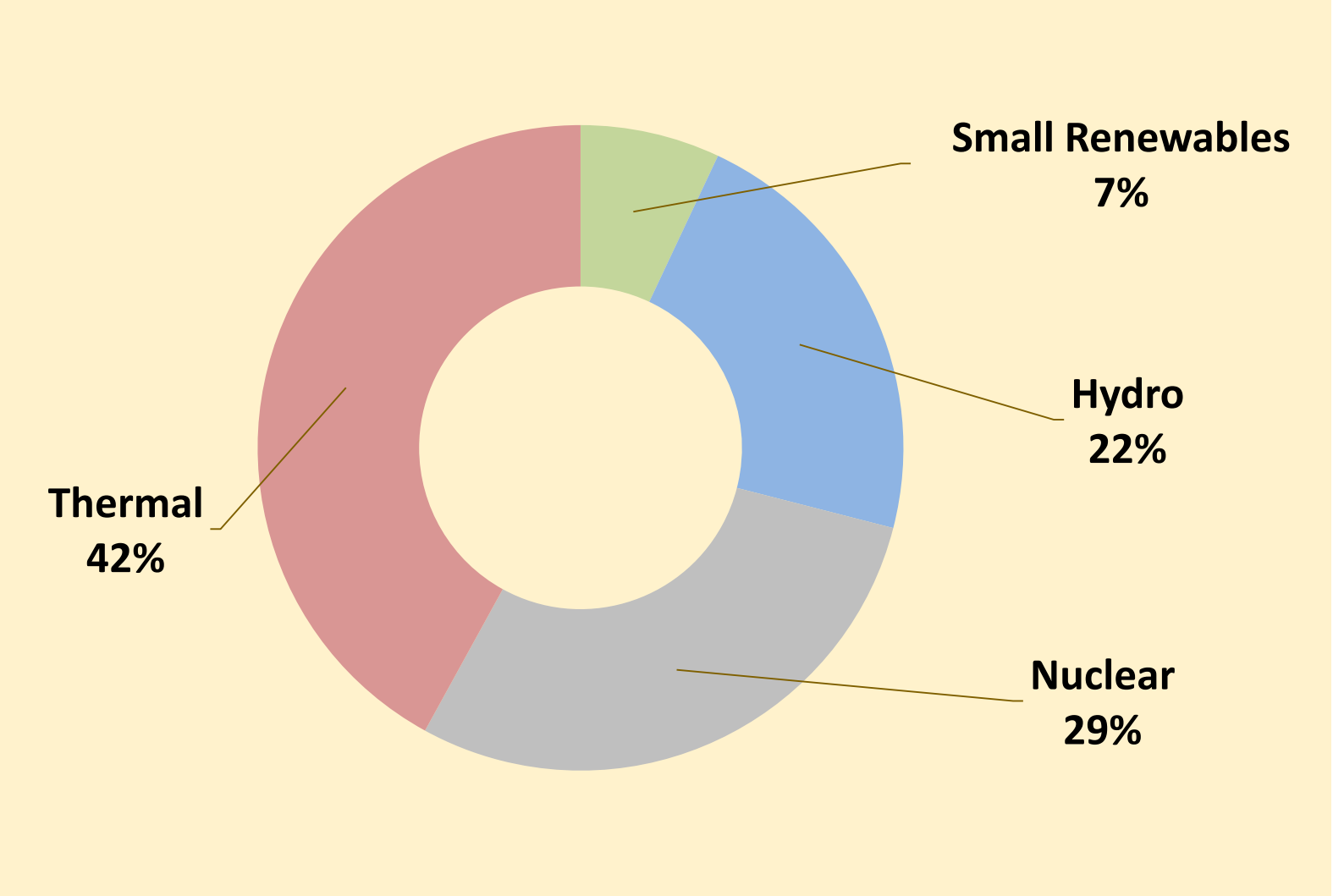
  Limited natural resources

  Lack of fossil fuel resources
- **High dependence on external supply**

  Import all of oil and natural gas

  Indigenous energy resources in TPES 2012- 27,1% (nuclear, hydro, biofuel)
- **GDP (PPP) per capita in 2012: USD 7,650**

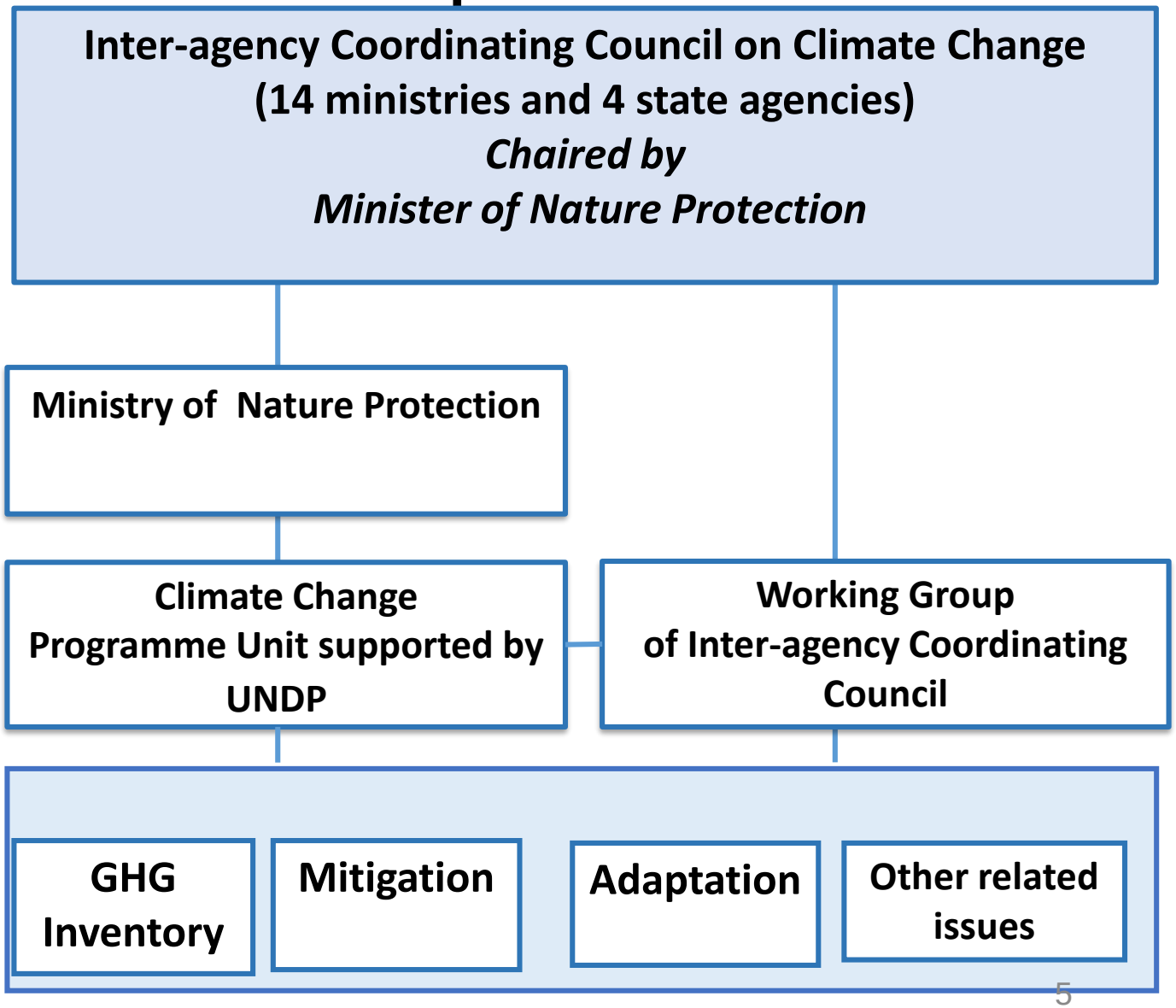
2012 power generation structure



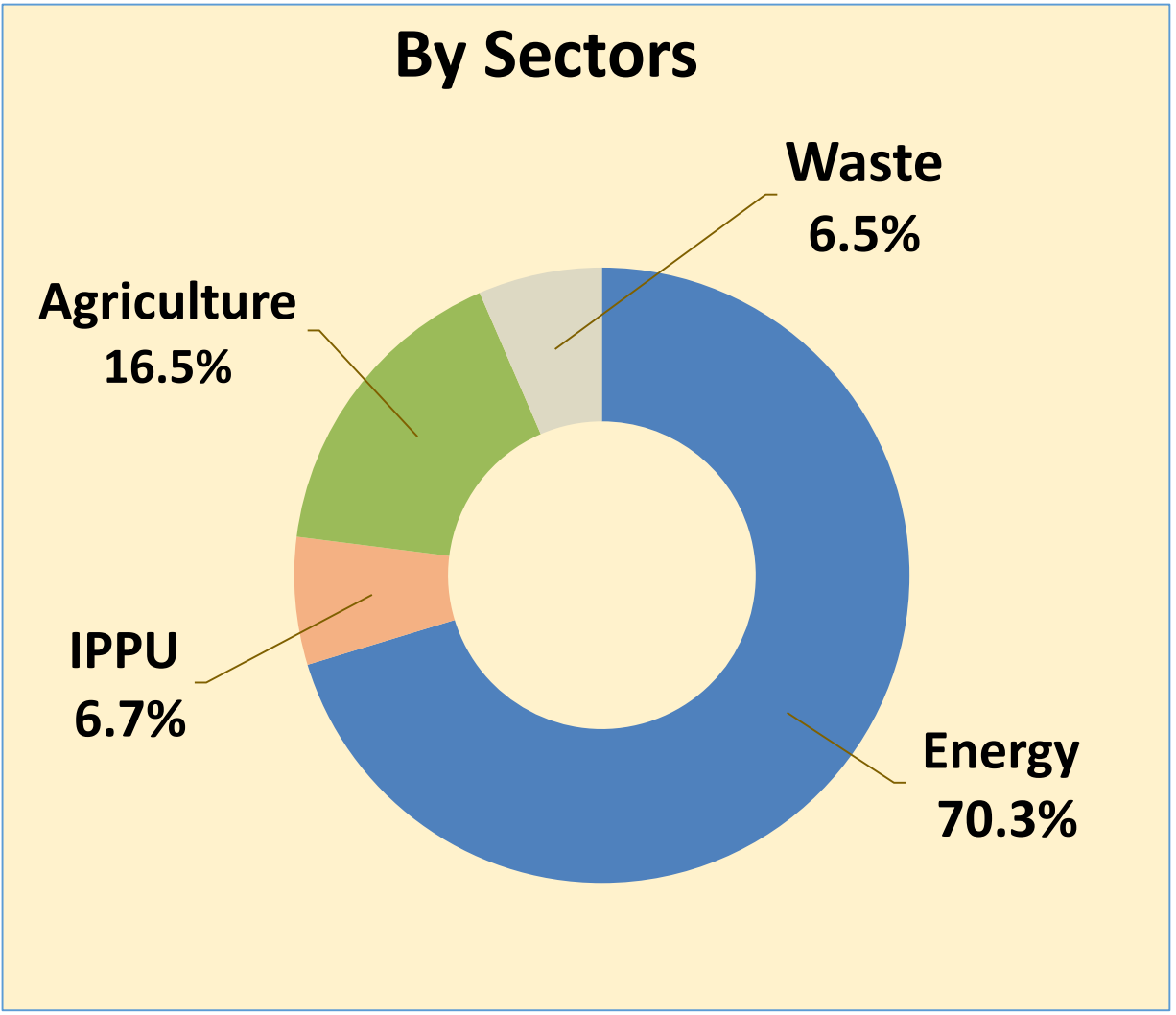
Key agencies involved in BUR preparation:

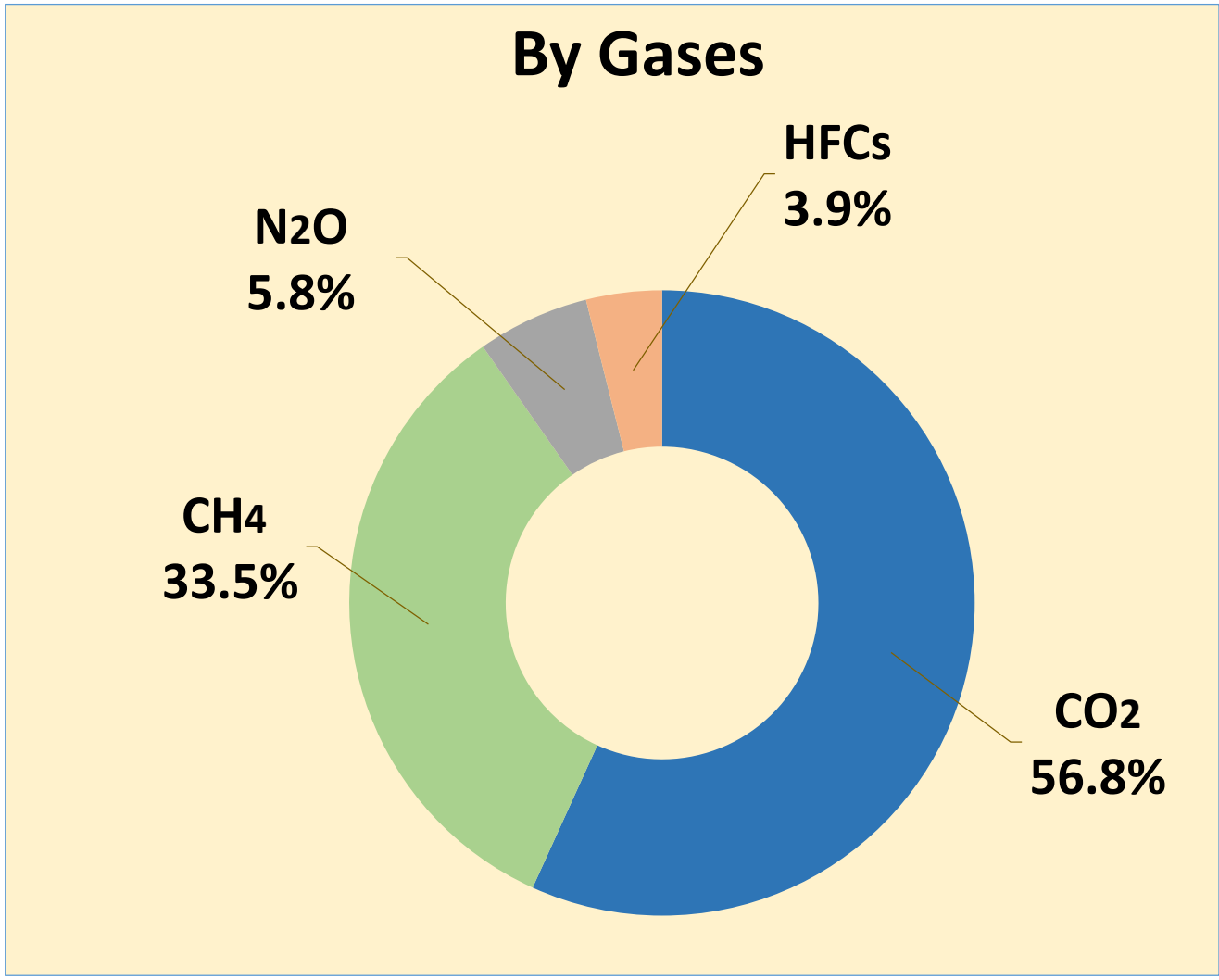
- Ministry of Nature Protection
- Ministry of Energy Infrastructures and Natural Resources
- Ministry of Agriculture
- Ministry of Transport, Communication and Information Technologies
- Ministry of Economic Development and Investments
- State Committee of the Real Estate Cadastre
- Public Services Regulatory Commission
- National Statistical Service

Institutional structure for UNFCCC implementation



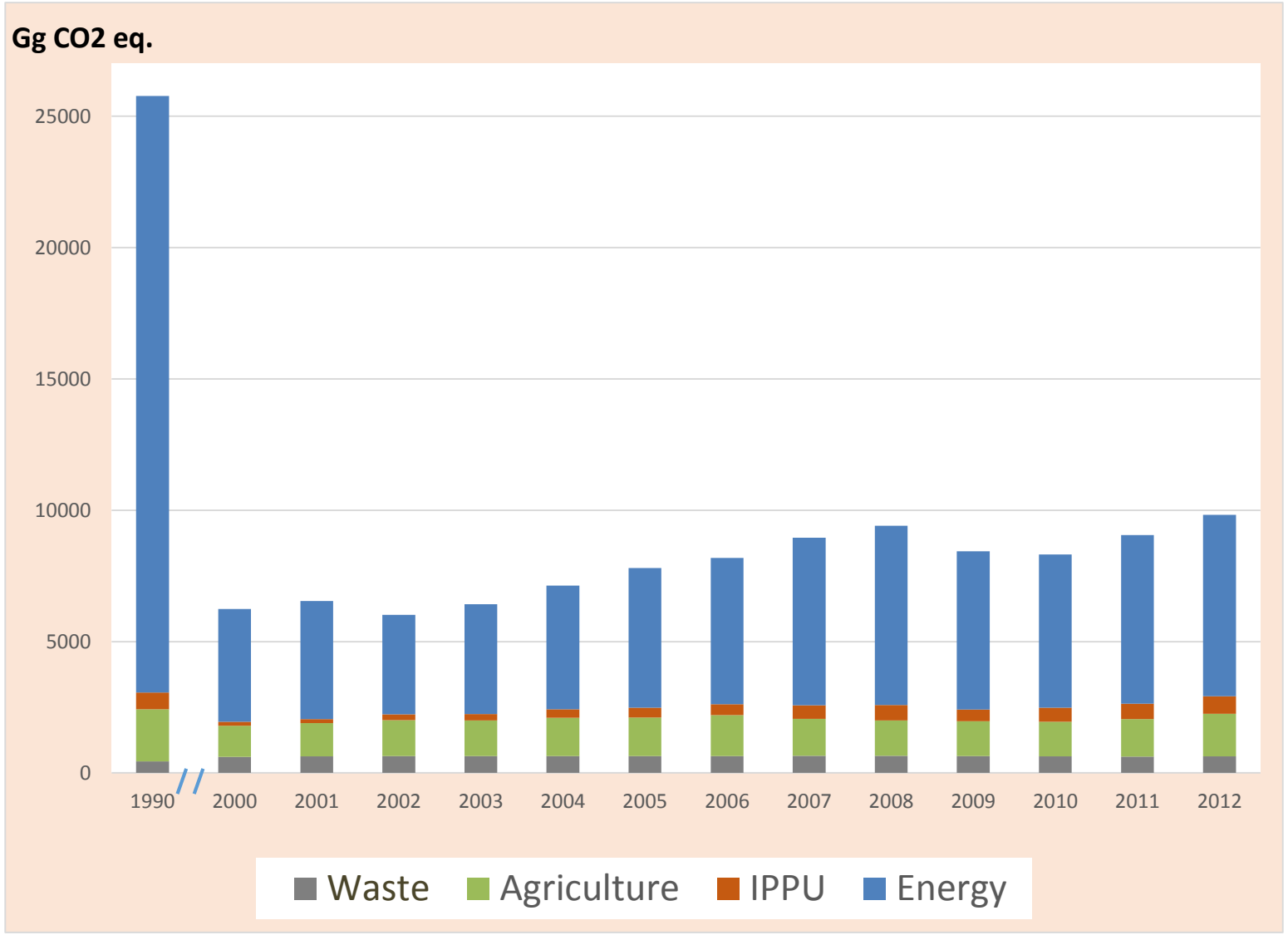
National GHG Inventory, 2012





Total: 9,829 Gg $CO_{2eq.}$

GHG emissions trend, by sectors

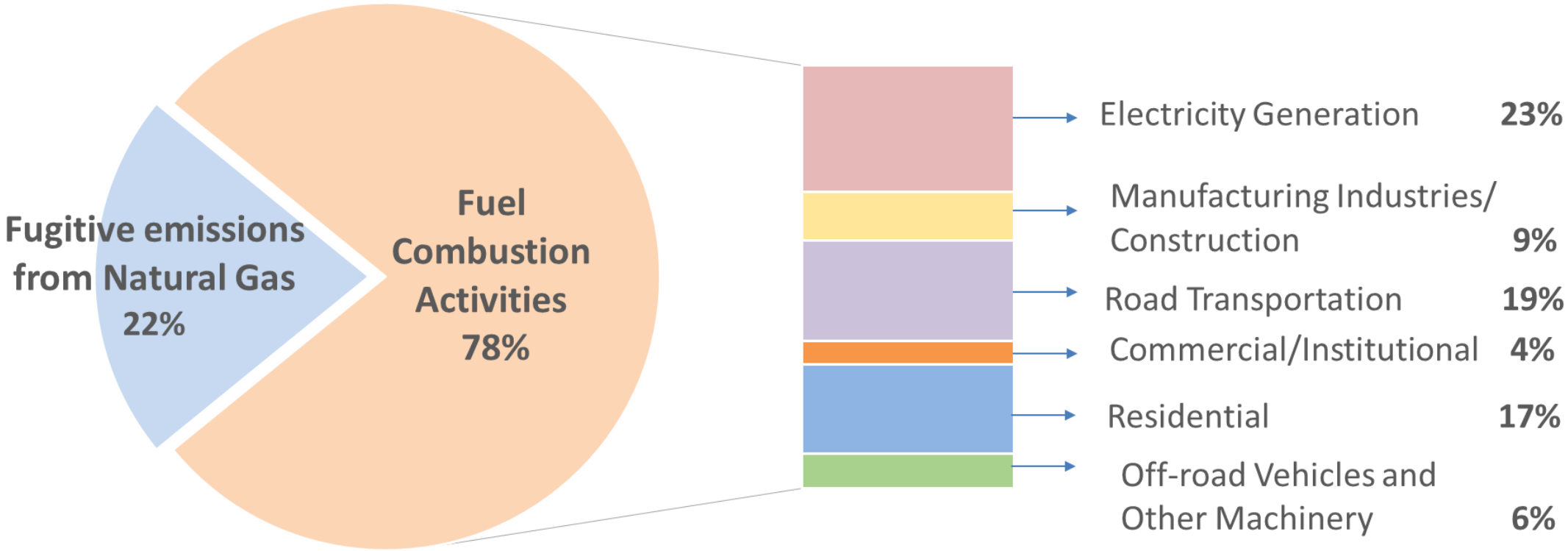


- Total GHG emissions decreased by 61% since 1990
- GHG emissions per capita
  1990 - 7.2 tonnes
  2012 - 3.12 tonnes

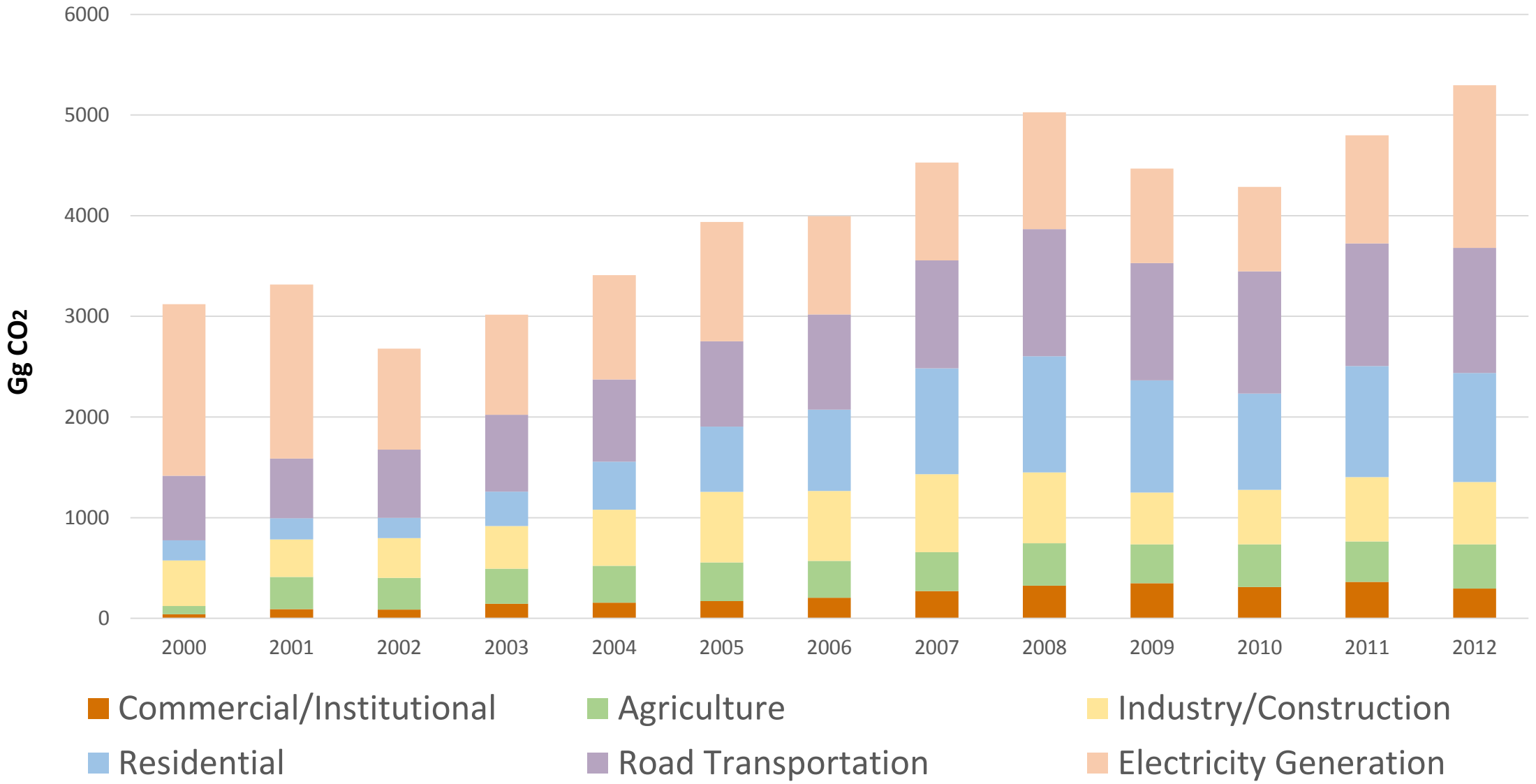
Trends of 2005-2012:

- Energy-related emissions increase is due to increase of emissions from electricity generation, road transport and households as a result of economic growth
- IPPU sector emissions increase is due to F-gases increase
- Agricultural emissions increase is due to livestock population and fertilizer use increase

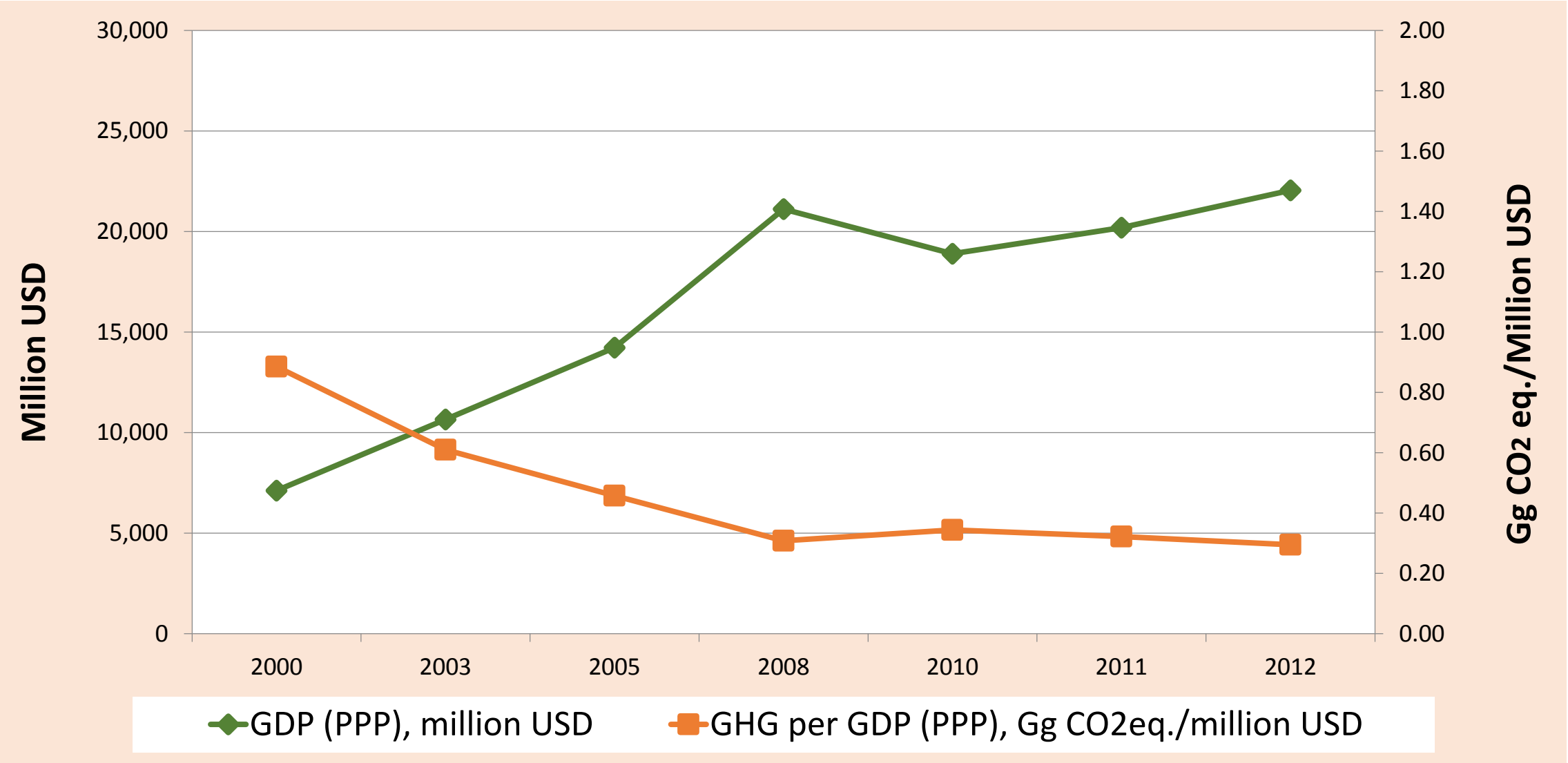
Breakdown of GHG emissions from Energy sector, 2012



CO_2 emission time series from Fuel Combustion Activity



Economic growth and carbon intensity



Enhancing GHG Inventory quality and transparency

Methodology Improvement

- Introduction of higher Tier for 11 subcategories (Tier 2 and 3)
- Development of 5 Country Specific Emission Factors for the Key Sources
- Including data for 6 new subcategories

Quality Assurance

- On-line platform for data input using 2006 IPCC software
- Review of NIR draft by international expert supported by UNDP-UNEP Global Support Programme
- Review of draft NIR by the key stakeholders and data providers

Transparency

- The GHG Inventory is published in Armenian and in English and uploaded on the Climate Change Information Center web-site for public review and comments

Energy sector policy

Energy Security Concept of the RA, 2013

- Increase indigenous energy production (including nuclear) and fully utilize the potential of energy efficiency to reduce dependence from external suppliers,

Scaling up Renewable Energy Programme, 2014

- Increase the share of RE (without large HPPs) in power generation mix, 21% - in 2020 and 25% - in 2025

Amendment to the Law on Energy, 2014

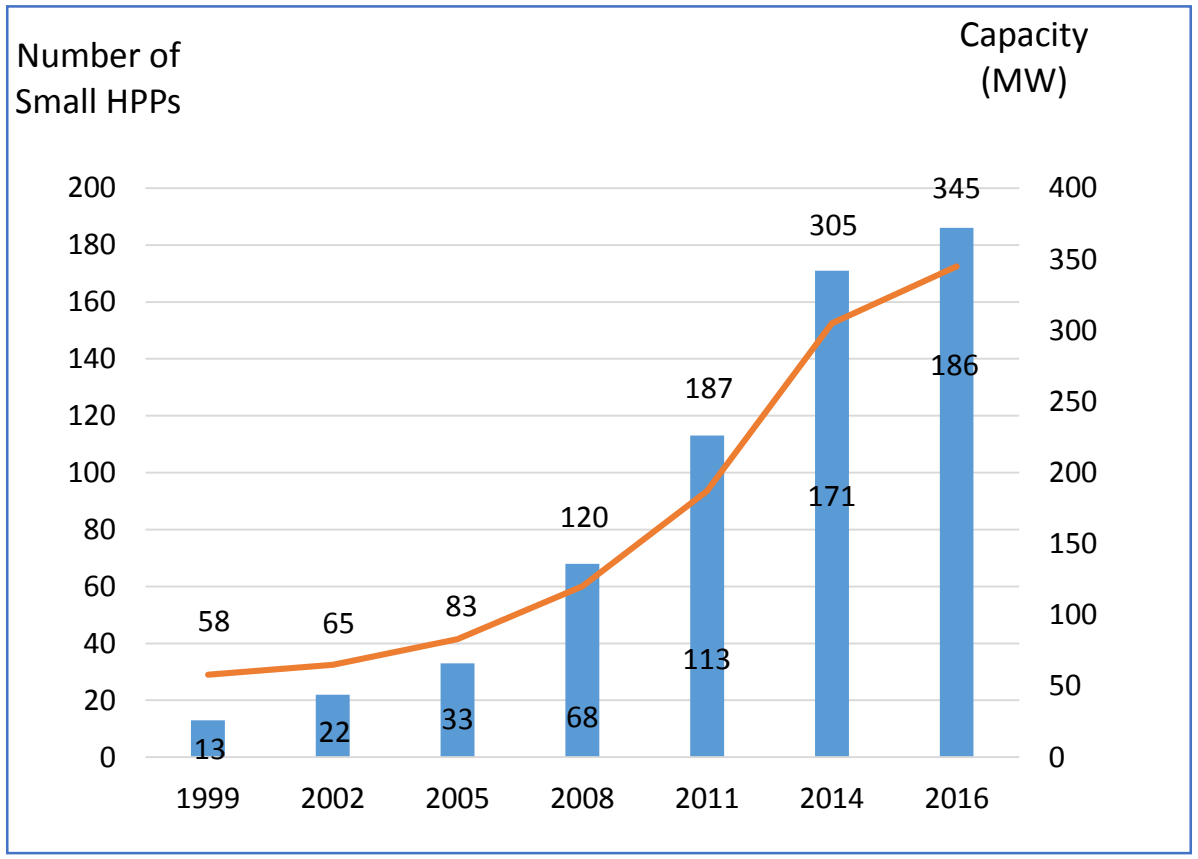
Energy System Long-Term Development Pathways, 2015

Concept on Development of the Hydro Energy, 2016

Amendment to the Law on Energy and to the Law on Energy Saving and Renewable Energy, 2016

Renewable energy: public-private partnership

Measure: Small HPPs

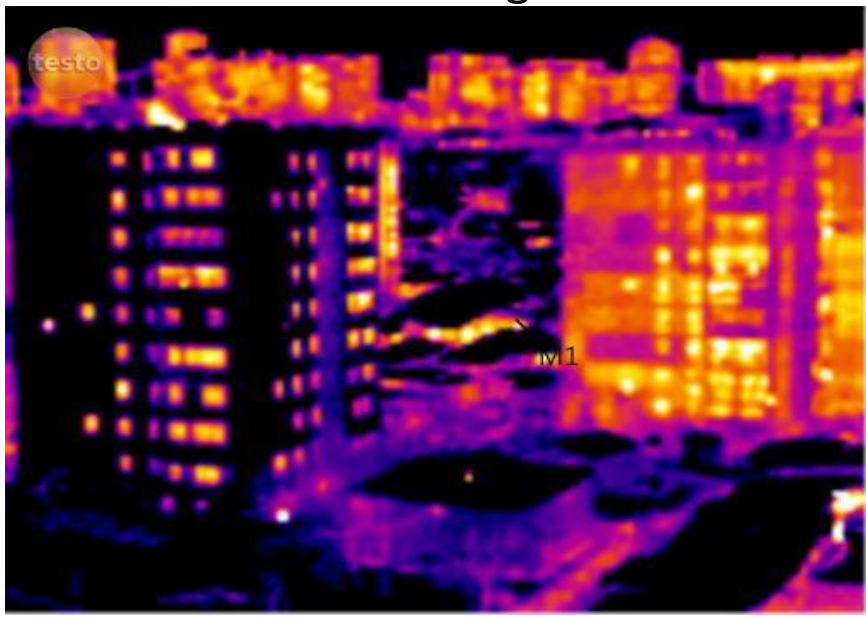


Measure: Solar PV with peak capacity of 50 MW, *under construction,* PVs up to 150 kW installation is boosted

Energy efficiency: policy and measures

- National Energy Efficiency Action Plans - 1st (2010) and 2nd (2016)
  Amendments to Law on Energy Saving and Renewable Energy, 2016: *set the minimum energy performance requirements for all new and renovated buildings*
- 17 cities are signatories to Covenant of Mayors
- Yerevan city Sustainable Energy Action Plan, 2016
- New construction codes (2016, 2017)

Measure: EE in buildings



Annual energy consumption reduced by 60%:

Before: 178 kWh/m²
After: 74 kWh/m²

Measure: EE lighting

Installation of 2,400 LED street luminaires

Key examples of measures

Power generation

Increase of indigenous production from:

- HPPs
- Solar PVs
- Wind Farms
- Geothermal Plant

Reduce losses in electric distribution network

Construction of new efficient TPPs (CCGT)

Buildings

- MEPS enforcement for new residential buildings and in facilities constructed by state funding
- Energy audit and labelling standards approved

Transport

- Optimization of public road transport route grid
- Replacement of minibuses by larger buses

Industry

RE and EE loans for small and medium size enterprises

Residential

- EE mortgage loans
- SWH in rural areas
- Credit lines for purchasing EE appliances and reconstruction of houses

Lighting

- Updated building codes on lighting
- Municipal revolving funds for scaling up EE lighting

Waste

- Solid Waste collection and management improvement
- Landfill gas capture and combustion under CDM project

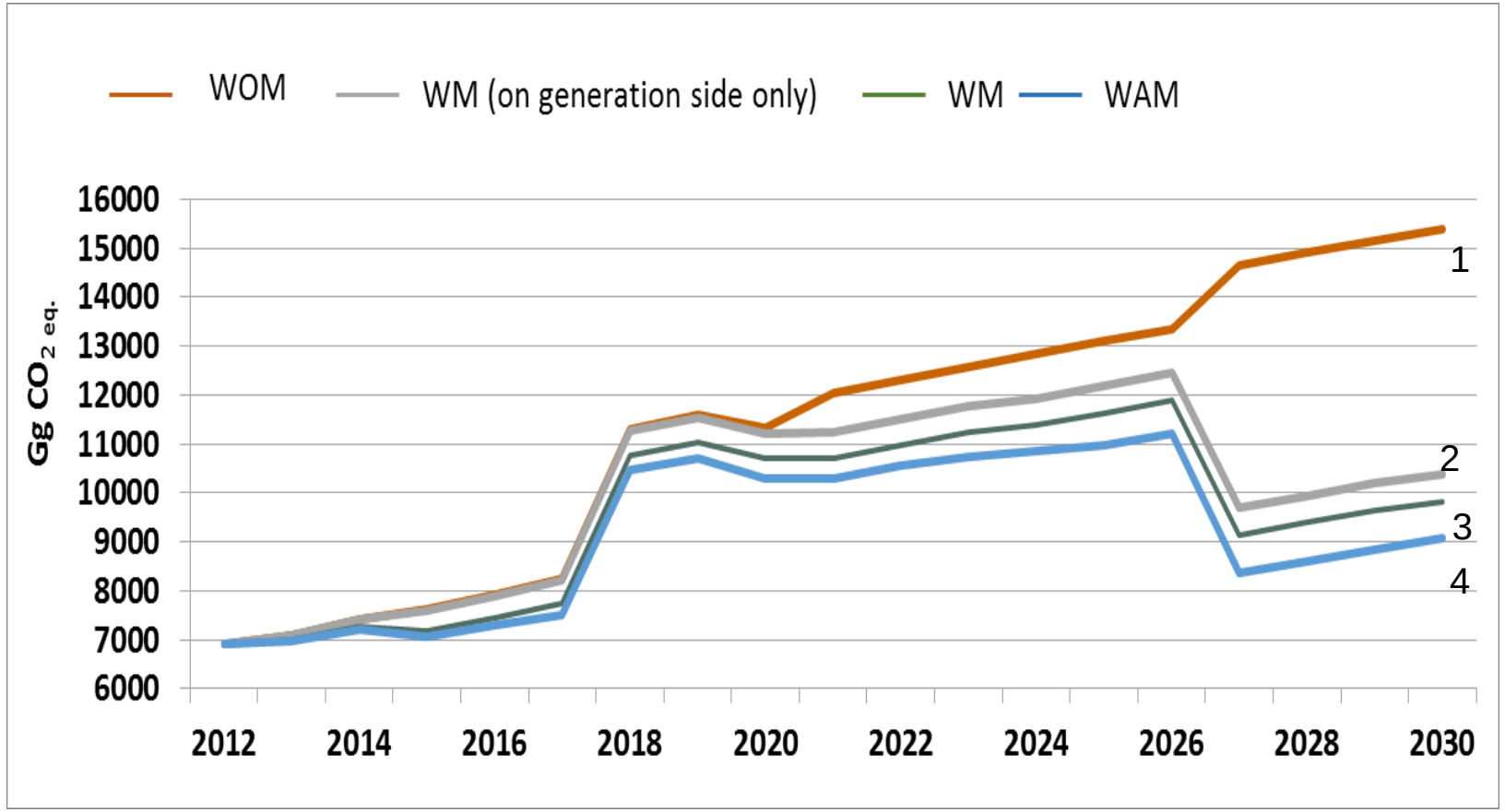
Forest

- Reduce illegal logging
- Reforestation

Served as a basis for Intended Nationally Determined Contributions of Armenia, 2015

Mitigation projections for Energy sector (2012-2030)

- LEAP (Long Range Energy Alternatives Planning System) software used
- 2012 base year is calibrated with National GHG Inventory
- 4 scenarios assessed according to recently adopted strategy papers

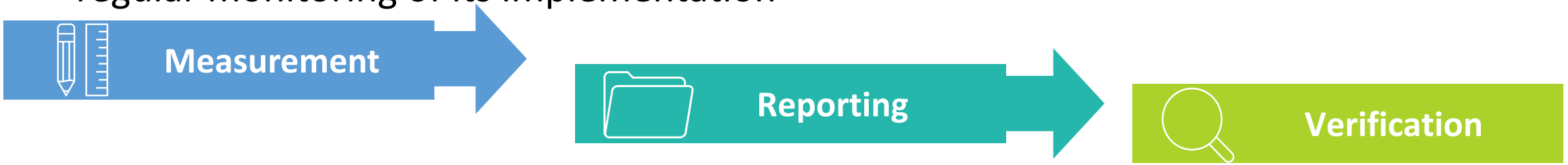


Mitigation potential under WM scenario in 2030

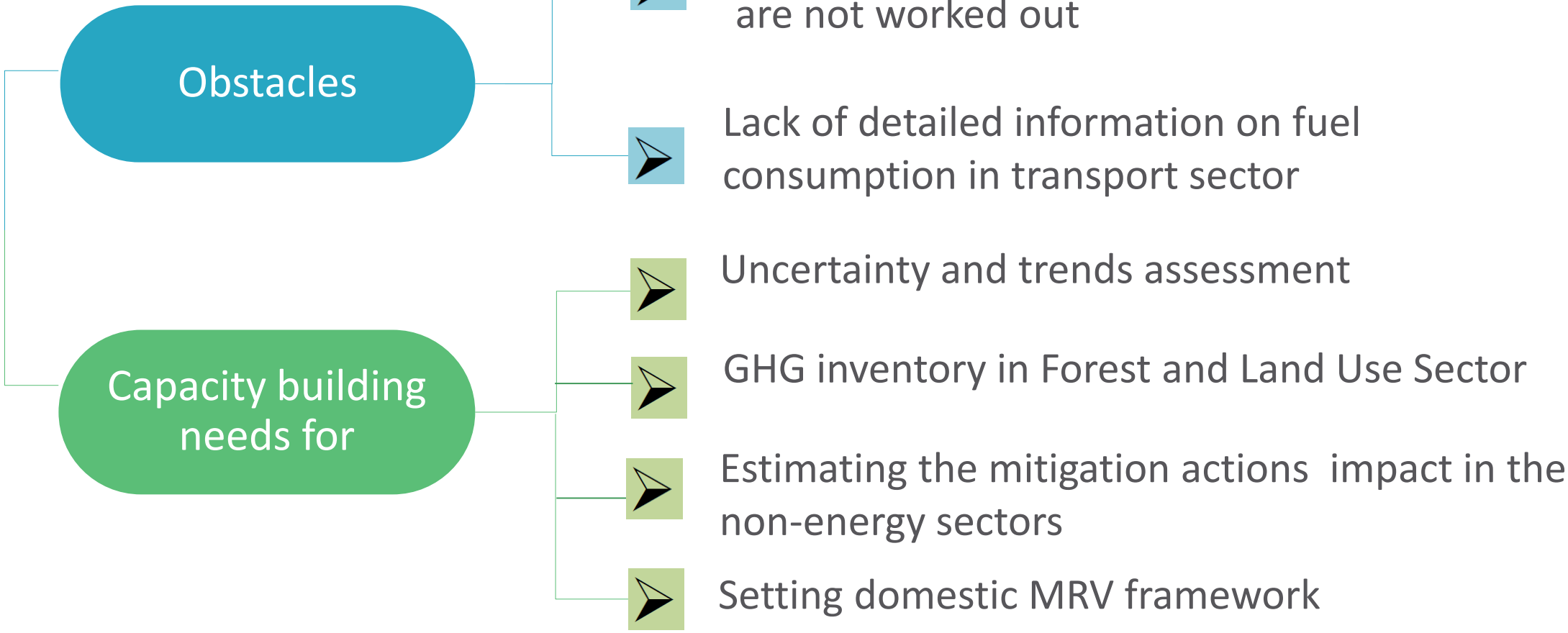
Measure	GHG emissions reduction, Gg $CO_{2eq.}$
New NPP (1000 MW)	3,959
New Renewables	1,065
Demand side	558
Total	5,582

Steps for improving domestic MRV

- Improved GHG Inventory quality and accuracy
- Improved collection of relevant information:
  - Energy Balance publication is mandatory since 2015
  - Developed standard forms for GHGI activity data providers
  - Used formal channels for requesting information on mitigation actions according to developed standard forms
  - Climate statistics is published by National Statistical Service
- Energy grid emission standardized baseline developed and approved by CDM Board
- Municipal energy action plans under Covenant of Mayors are developed, including regular monitoring of its implementation



Obstacles and needs for reporting



Experience and lessons learned from ICA process

Domestic Coordination

Increased ownership and responsibility of Ministry of Nature Protection in its coordinating role for reporting under UNFCCC

Reporting

Contributed to better understanding of enhanced requirements towards GHGI and mitigation progress reporting, including key areas to be reported more detailed

Needs

Highlighted the need for improved communications between national partners and revealed gaps and areas for capacity building

Profile of BUR

Raised the status of importance on reporting under UNFCCC and Paris Agreement

THANK YOU!

Annex:
Questions and Answers

12 questions have been received through the on-line portal and the answers were uploaded accordingly before 3 November: Japan, New Zealand, Thailand, United States of America, Egypt

Questions grouped as following: related to the Inventory, methodologies used for the mitigation impact assessment, specific questions related to the 2 mitigation programs in Armenia, capacity building of domestic staff and identification of capacity building needs for AFOLU sector

Japan: Challenges in applying 2006 IPCC Guidelines.

- Armenian expert team has the experience on using the 2006 IPCC software in the course of preparation of the 3rd National Communication. The challenges observed are limitations of applying corresponding software to identify key source at the appropriate disaggregation level of categories

New Zealand: Commends Armenia for the use of country-specific emission factors. What further improvements is Armenia planning for its inventory reporting?

- Introduction of higher Tier approach for 3 subcategories, inclusion of 14 new subcategories

Thailand: Provide more details on assumptions and methodologies used to estimate emissions from HFCs in refrigeration and air conditioning sector.

- Emissions were calculated based on the data on the imported HFCs containing equipment provided by Customs Service of Armenia

Japan and USA: Methodologies used to estimate impacts of mitigation actions.

- Emissions from Energy sector were estimated by using LEAP software; Forestry CO2 removals were assessed based on the data on reforestation area; Waste sector mitigation measure impact is based on CDM project and its Monitoring Report validated and available on the UNFCCC website

USA: Justify the use of the identical electricity export figures under 3 mitigation forecast scenarios.

- The approach used is based on international agreements with the neighboring countries which do not foresee changes in the volumes of export

Egypt: Achievement of the mitigation actions via national plans, and the institutional arrangements in developing GHG inventory and linking the project mitigation actions in the energy sector.

- Written answers to these questions were submitted on the on-line portal and included in this presentation

Japan: Provide further details on "The IFC Armenia Sustainable Energy Finance Project" and "Green for Growth Fund".

- Under the both programs, loan facilities have been provided to local commercial banks, which provided long-term financing at affordable rates to customers to promote RE and EE development in Armenia.

USA: Steps to improve the technical capacity of domestic staff

- Trainings organized for local team on the 2006 IPCC Guidelines
- Participation in the training organized by UNFCCC Secretariat, Republic of Korea, 2017

USA: Identification of opportunities for AFOLU sector capacity-building needs.

- Gaps in data collection and emission assessment for forest and land use sectors have been identified
- Some actions on capacity-building for forest sector are planned in the framework of GEF-UNDP REDD project