Country Reports on Energy

ener2i Country Reports

INNOVER-EAST National Studies

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EU-Eastern Partnership STI Cooperation in Addressing Energy Policy Stakeholders Conference in Minsk, 12 - 13 October 2015

R2I Cluster – *between research and innovation in Eastern Partnership Countries*

- **IncoNet EaP-** STI International Cooperation Network for Eastern Partnership Countries
- **NoGAP** - Knowledge Transfer Community to bridge the gap between research, innovation and business creation
- **RERAM -** Bridging Gaps in Research 2 Innovation in Resource Efficiency and Raw Materials
- **SECURE- R2I** - Reinforcing cooperation with Eastern Partnership countries on bridging the gap between research and innovation for inclusive and secure societies
- **SUAFRI-EPC** - Supporting the Uptake of Agri-Food Research Results into Innovation with EPC countries
- **INNOVER-EAST**
- **ener2i** - Energy to Innovation - Reinforcing cooperation with ENP countries on bridging the gap between energy research and energy innovation

EaP countries involved to the projects

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- Armenia 
- Belarus 
- Georgia 
- ***Moldova*** 

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- Armenia 
- ***Azerbaijan*** 
- Belarus 
- Georgia 
- ***Ukraine*** 

Thematic focus

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- Analysis on the local energy sector and the potential in energy efficiency and renewable energy sources
- Identification of opportunities and barriers
- Identification of relevant stakeholders

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- Focusing on energy efficiency and innovation
- Presenting the socio-economic framework
- Analysing both the supply and the demand side of R&D&I in EE

Methodology used

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- based on a common methodology
- desk research
- interviews, expert workshops (in all partner countries, first draft versions were used for discussions with the stakeholders)

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- based on a common methodology
- desk research
- interviews + online surveys
- Validation workshops before finalising the national studies

Current Status

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- Country reports are finalized, cross-country comparison is in pre-final stage
- Structure of the comparison:
  - General overview of energy situation in the EaP countries
  - Current EE / RES situation
  - Innovation situation
  - Cross-Country Comparison Analysis
- Reports and Cross-Country Analysis will be updated by Spring 2016
- Policy recommendations and Roadmap will be drafted

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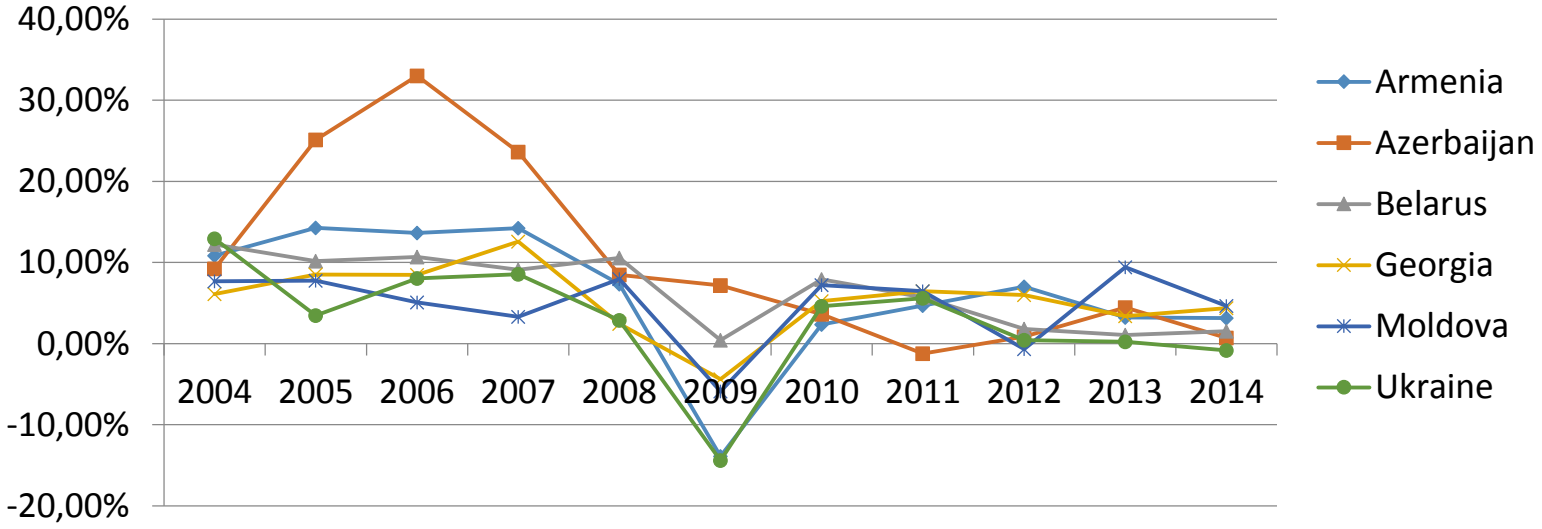
- Validation Workshops conducted
- National Studies finalised (except for AZ)
- In-house Moldova report prepared
- Database of stakeholders
- Database of key data series
- Synthesis report under preparation
- Policy aspects: next steps

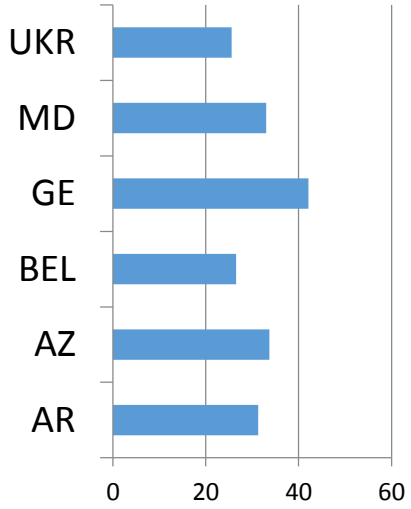
Socio-economic background of the target countries

- Different economies with different conditions facing the same global economy
- Diversification of the economies, role of the various sectors (agr., manufact., low and high value added), outsourcing)
- Internationalisation

Real GDP growth, %:



GINI index, 2013



Source: World Bank Development Indicators

Energy Supply 1.

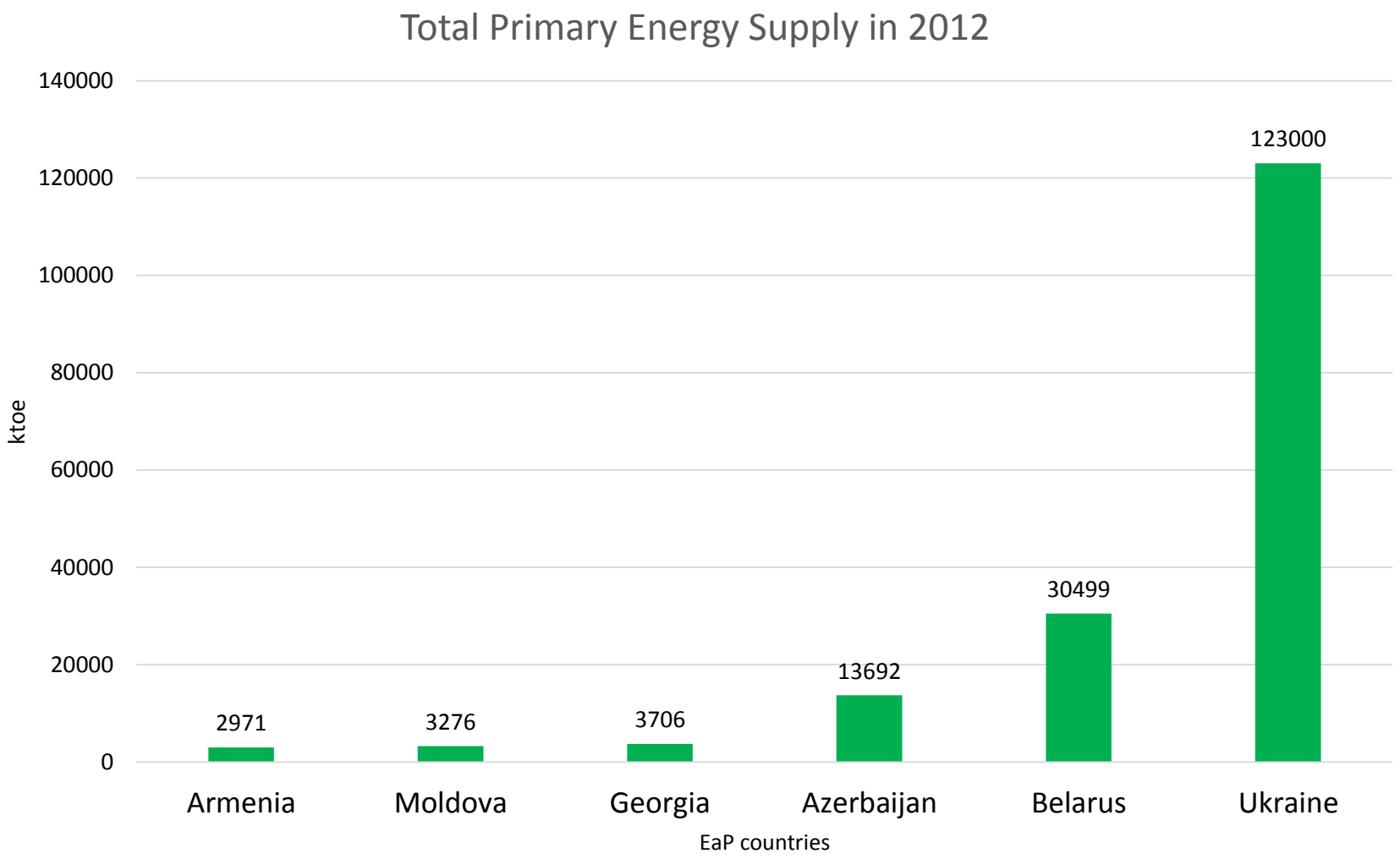
Total Primary Energy Supply is made up of

a) indigenous production
b) imports
c) exports

- Regional Overview
- Ukraine has the greatest TPES among EaP countries (four times bigger than the second biggest Belarus) → in terms of the absolute value of their TPES iit is difficult to compare to other EaP countries

- AM, MD and GE: almost the same size of TPES

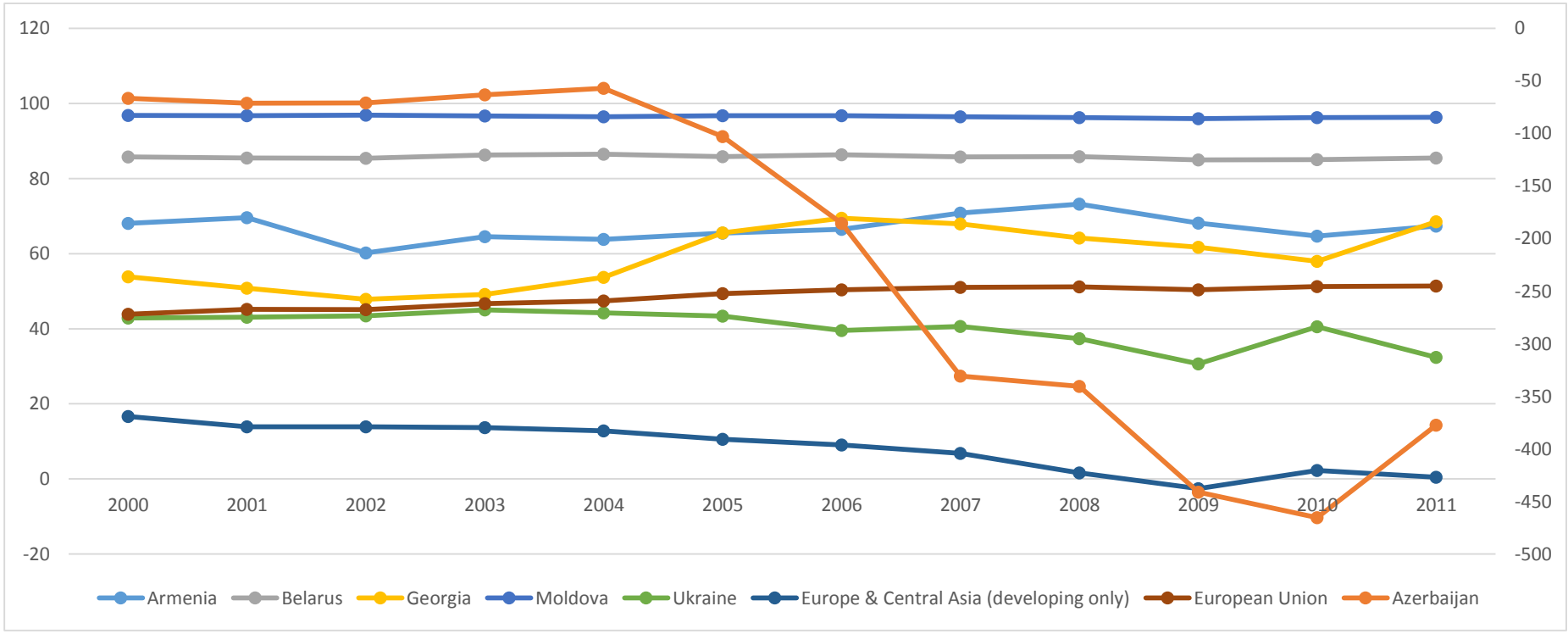
Source: International Energy Agency (2012)



Energy Supply 2

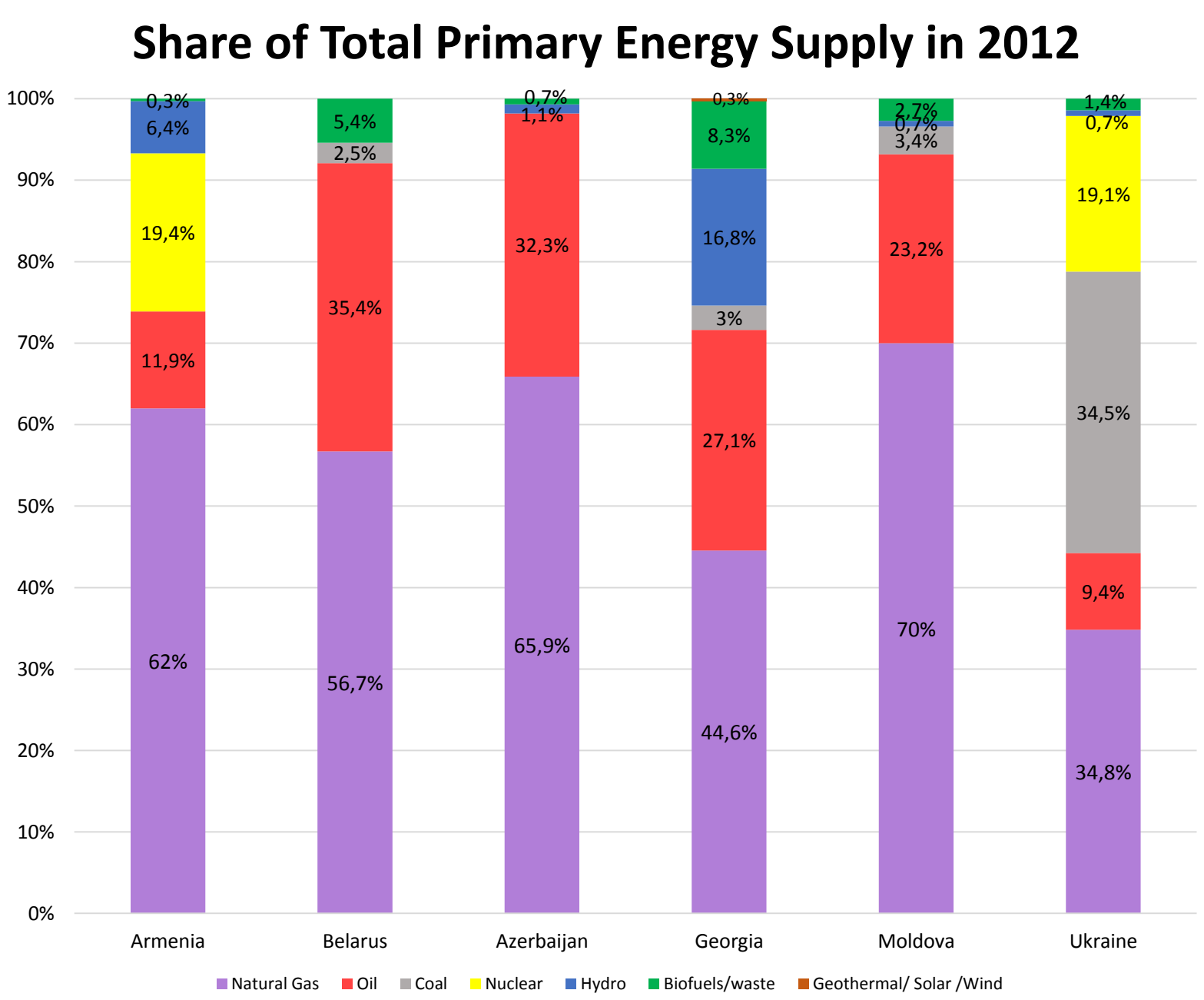
Different internal supply of natural resources, different energy policies and solutions and import-dependence. Azerbaijan: internal supply. Alternative solutions: (Russian) gas, nuclear energy, and renewables.

Energy imports, net (% of energy use)



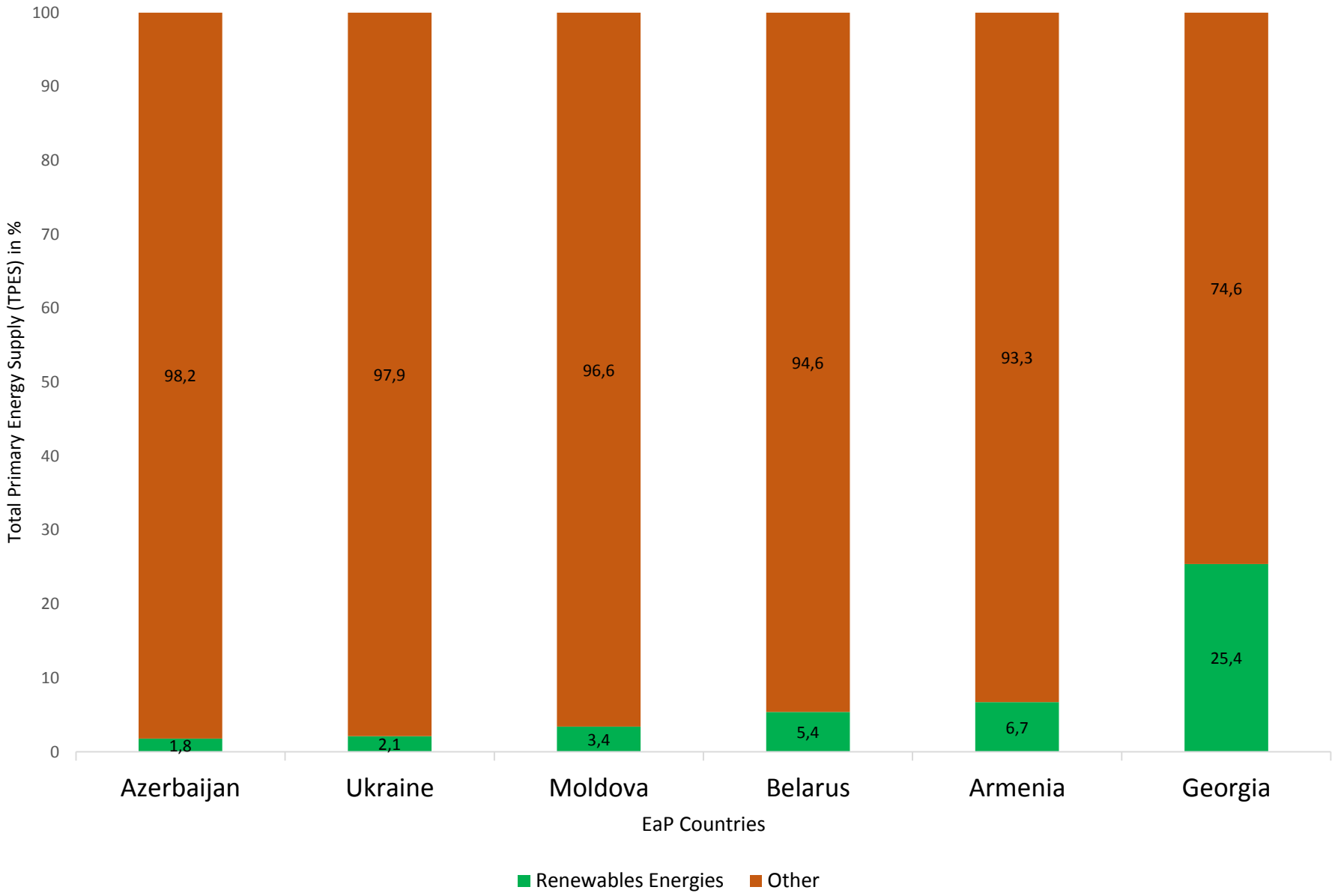
- Natural gas plays a very significant role in AM, BY, AZ and MD
- GE and UA more nuanced approach
- Coal in UA is just as important as natural gas
- Oil is the second most common (except for AM and UA)
- AM and UA: nuclear energy provides almost 20% of their TPES (NPP is being constructed in BY)
- Renewables are also appear

Source: International Energy Agency (2012)



Share of renewable energies from the TPES in % (2012)

- Shares are in %
- all the RES are indicated with green, all others with orange
- in ascending order

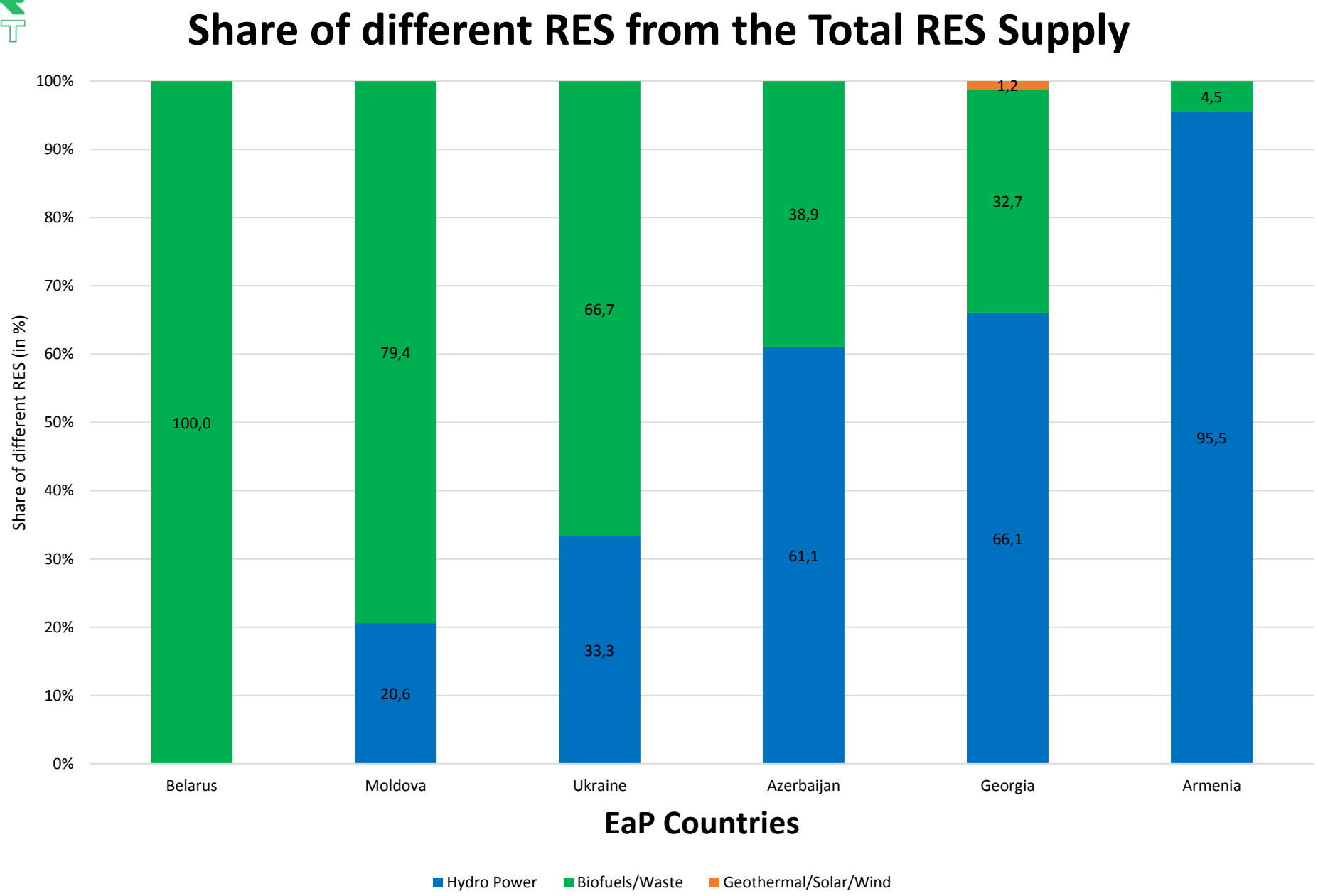


Source: International Energy Agency (2012)

In 2012 (%):

- biofuels exclusively in BY
- biofuels in MD and UA predominantly
- Hydropower: vast majority in AR and AZ
- GE: most balanced where solar/wind/ and geothermal appear

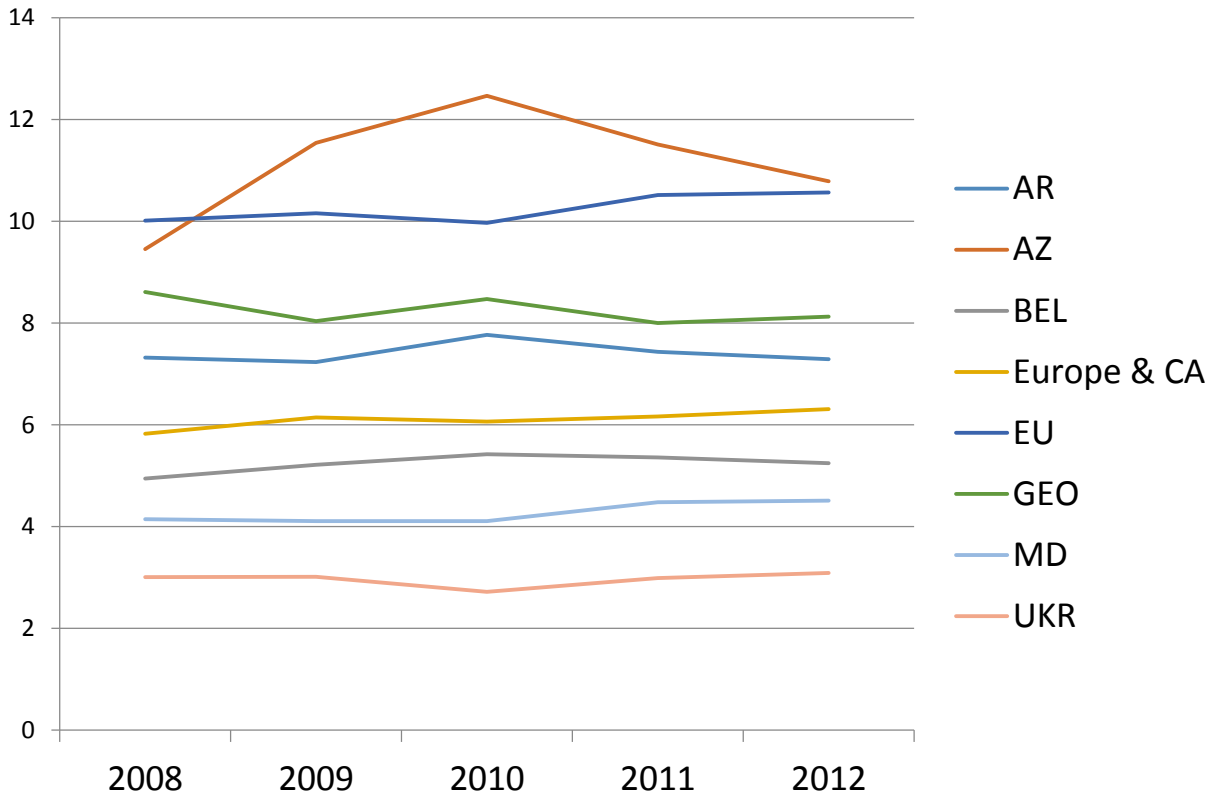
Source: International Energy Agency (2012)



Energy Efficiency

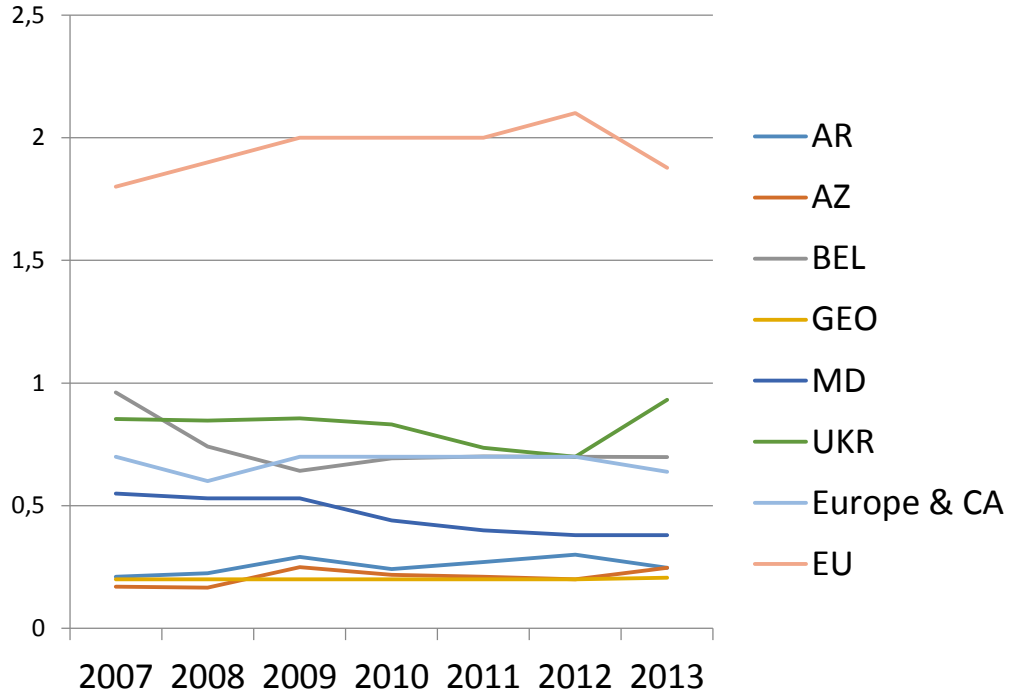
- Issues of outdated agricult., manufacturing and transport equipment
- Issues of household energy efficiency (insulation, etc)
- The role of the public sector as a regulator, as a demonstrator, as a co-financer and as a public procurer
- The role of R&D&I: finding the appropriate local solutions

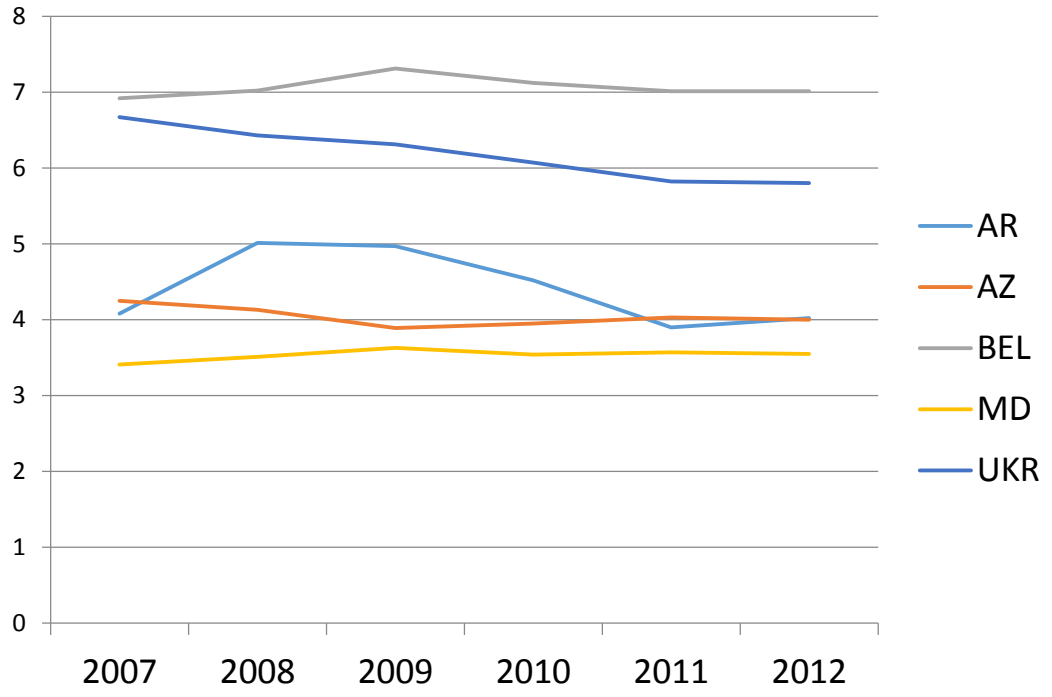
GDP per unit of energy use (constant 2011 PPP $ per kg of oil equv.)



R&D&I

R&D&I expenditures in % of *GDP* (GERD) and Total R&D personnel /1000 labour force





Source: World Bank Development Indicators, UNESCO, UIS

Bottlenecks of innovation - InnoverEast

- Unfinished legal and policy framework in some countries
- Lack of tradition of „Research @ University”, absence of university start-ups, spin-offs
- Lack of aggregation for local demand
- Lack of FDI to interact with local technology development
- Incomplete transparency on power business groups
- Unclear role of the public sector on setting the standards and procure innovation

Bottlenecks of innovation – ener2i

- the ‚supply side'
- The problematic of general findings in the EaP countries
- 3 main groups of bottlenecks: legal, RTDI, financial (based on the ener2i country reports)
- **1.) Legal**
- **Absence/insufficiency of the legislation** related to the development of EE/RES innovations: esp. Georgia, however improvements → BUT: First National Energy Efficiency Action Plan which will be completed by the end of 2015
- **Some legal initiatives in support of RES/EE can be found in various legal documents**: Moldova
- **Recommendations and suggestions** for legal interventions included in strategic documents have **not been considered** or implemented **in several cases**

Bottlenecks of innovation – ener2i

2.) RTDI

- the **lack of intermediary organizations** – such as technology transfer centers, business incubators and technoparks **aiming to foster cooperation between public RTD and business communities** as well as to **support knowledge commercialization activities** - one of the major bottlenecks of the Armenian innovation system
- **Obtaining permits** and **licenses for RES is still cumbersome**, costs are high, requires long lead-time
- **Coordination between permit giving authorities needs to be enhanced**, transparency should be increased
- **Public awareness** on EE/RES innovations potential and opportunities is still low in some cases. There are **no efficient information campaigns** to promote EE/RES

Bottlenecks of innovation – ener2i

3.) Financial issues

- Low level of **financial support for R&D in terms of gross expenditures on R&D** UA: 0.8%, BY: 0.7%, MD: 0.4% while AM, AZ and GE: 0.2% (in 2015 according to Global Innovation Index)
- Absence and/or **insufficiency of governmental financial support to research centers/institutions** for developing EE/RES innovations
- Funding is problematic, support for private sector (business, SMEs) should be provided
- **Access to finance** is problematic

→ but there are good examples also, e.g. in Georgia, where local banks recently started financing EE in newly constructed buildings. Green loans for customers, who are willing to introduce EE/RES technologies in their homes or businesses are also available

Potentials of innovation

- Ongoing developments in scientific capacities and research skills of the R&D&I staff
- Economic and political trends highlight the value of reducing import dependency in energy
- Industrial and economic restructuring is in momentum
- Cooperation among the actors of the EPC countries
- Cooperation with non-EPC countries
- Potential in mobility, migration, knowledge transfer, remittances

Thank you for your attention!

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