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INTERNATIONAL CONFERENCE:

UNLOCKING PRIVATE FINANCE

FOR ENERGY EFFICIENCY
AND GREENER, LOW-CARBON GROWTH

in the Eastern Partnership and
Central Asia countries

DISCUSSION
PAPER

EaP GREEN
Partnership for Environment and Growth



UNLOCKING PRIVATE FINANCE FOR ENERGY EFFICIENCY AND GREENER, LOW- CARBON GROWTH

**CAN PRIVATE INVESTORS FINANCE THE GREEN,
LOW-CARBON AND ENERGY EFFICIENT DEVELOPMENT
IN EASTERN PARTNERSHIP AND CENTRAL ASIA COUNTRIES**

**International Conference
Brussels, 29-30 June 2017**

Discussion paper

The conference is part of the EU-funded "Greening the Economies of Eastern Partnership Countries" (EaP GREEN) project, implemented by the OECD in co-operation with UNECE, UN Environment and UNIDO. It is also supported by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.

Unlocking private finance for energy efficiency and greener, low-carbon growth

Introduction

One of the key priorities of the Eastern Partnership and Central Asia countries is to support the transition to cleaner, affordable, and more sustainable energy. This is expected to make the region less exposed to external risks and to bolster the countries' resilience by reducing energy imports and thus dependency, while also helping them to achieve their climate goals. Promotion of energy efficiency also leverages innovative technologies and products which stimulates investments, growth and jobs.

Energy connectivity and sustainable energy are important elements of energy security as identified at the Riga Summit in 2015. This is further emphasised in the EU's Joint Staff Working Document "Eastern Partnership – Focusing on key priorities and deliverables", which focuses on energy efficiency, enhanced use of renewable energy, and reducing greenhouse gas emissions in line with the Paris Agreement on Climate Change. It is expected that this issue will figure prominently at the next Eastern Partnership Summit in November 2017.

In 2016, the European Commission proposed an ambitious External Investment Plan (EIP) to encourage investment in the partner countries in Africa and the EU Neighbourhood region, to strengthen the partnerships and contribute to achieve the Sustainable Development Goals, helping addressing some root causes of migration. Part of the EIP is the new European Fund for Sustainable Development as an integral financing mechanism to support investments by public financial institutions and the private sector. The EIP is more than just a new financial instrument it is rather a new approach to linking policy dialogue, technical assistance, and finance.

This paper is prepared by the OECD Secretariat in order to facilitate the discussion at the International Conference on "Unlocking private finance for green investments" which will take place on 29-30 June 2017 in Brussels. The main objective of the Conference is to take stock of recent initiatives, policy developments and financial vehicles in the six Eastern Neighbourhood Partner countries and Central Asia¹ that support government efforts to shift towards a greener and more energy efficient path of economic development.

While largely following the thematic scope of the conference and on-going work, the paper also highlights new topics that may form the agenda for further advancement of green growth policy reforms in these countries. The Paris Agreement on Climate Change, the Batumi Initiative on Green Economy (BIG-E) and the UN Sustainable Development Goals (SDGs) on energy and climate change provide the underpinning background for ensuing analysis. This paper also reflects key issues included in the Ministerial Declaration on Cooperation on Environment and Climate Change in the Eastern Partnership approved on 18 October 2016 (EC, 2016) as well as the complementary Joint Communiqué for Central Asia countries, adopted at the Milan Ministerial Meeting in October 2015.

¹ EU Eastern Neighbourhood Partner countries include: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine. Central Asia includes: Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan.

The paper, as well as the conference, are part of the EU-funded "Greening the economies of Eastern Partnership Countries" (EaP GREEN) project, implemented by the OECD in conjunction with its partners UNECE, UN Environment and UNIDO. This work is also supported by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

Session 1. Taking an integrated view

Fossil fuels have driven our economic system for more than 200 years. So, shifting away from them implies fundamentally transforming our production and consumption patterns and using available resources more efficiently. This will not only require massive investments in all economic sectors but also a different way of envisioning the future.

The greatest challenge to leapfrogging on the green growth agenda is to ensure that governments and citizens alike take the decarbonisation agenda seriously, and convince powerful investors to divest from fossil fuel-based assets. Decarbonisation of financial flows forms an integral part of this agenda and is crucial for a successful transition away from fossil fuels.

Scaling-up financing for a low-carbon and energy-efficient economy will not happen spontaneously. It requires concerted whole-of-the-government actions to send strong policy and price signals to ensure that green investments offer a sufficiently attractive risk-adjusted return. Governments, private investors, financiers and consumers need to work together to find better solution to mobilising more effective and efficient green finance.

As previous transitions (industrial revolution, globalisation) have shown, finance for such transformations has always been about access, affordability and profitability. Making more efficient use, re-directing and aligning public finances and capital markets with the new societal goals may not look easy. But it is already happening in many places, as shown in examples to be discussed at this conference. Governments have a vital role to play in reallocating and redirecting finance for green investments while minimising impacts on the poorer segments of society.

In light of the scale of the climate challenge and the growing fiscal constraints facing the EaP Partnership and Central Asian countries, public financing alone will not be enough to meet these investments needs. The low-carbon transition will require a large-scale mobilisation of all sources of private sector investment, with the governments playing a catalytic role and creating the right incentives which can help attract additional private funding. New sources of finance, such as green bonds and institutional investors, are emerging and their relevance for the region may be worth exploring further.

With the falling costs of renewables, shifting perceptions of investors and growing pressure from civil society to act on climate change, the world is reaching a tipping point. Given the high energy and carbon intensity of the EaP and Central Asia economies, there are opportunities for "low-hanging fruit" actions to improve energy efficiency and productivity. Thus, governments in the region need to act now and prepare the grounds for the transition to a greener model of development that is tailored to each country's economic structure and energy security needs.

The European Union, bilateral development partners and International Finance Institutions (IFIs) active in the EaP countries and Central Asia have put in place a number of programmes and financial vehicles which aim at helping the governments in their reform efforts, including to unlock private financing for green investments. In doing so, special care is taken to create the right enabling conditions and avoid distorting existing financial markets.

There is "no one size fits all" model of economic development. The underlying structure of the economy and energy security issues will define countries' specific policies. However, aligning new climate policies with existing policy frameworks will be crucial in facilitating and speeding up the

transition to a green economy. Governments have a vital role to play in reallocating money for green investments while minimising impacts on the poorer segments of society.

Issues for discussion:

- *What are the key challenges and ways forward to accelerating and scaling up green investments in support of more low-carbon and greener economy in the EaP countries and Central Asia?*
- *What are the sectors and market segments that need attention as a matter of priority on the way to achieving green economy?*
- *How can different actors cooperate better to advance decarbonisation efforts and the green growth agenda in the EaP countries and Central Asia?*

Session 2. Lessons learned from mobilising capital markets with a focus on bank lending

2.1. Capital markets evolution in Eastern Neighbourhood Partner countries and Central Asia and SMEs access to long-term finance

Capital markets have a crucial role to play in financing the transition to a green economy. However, in the EaP and Central Asia countries these markets remain relatively under-developed. Commercial banks maintain a dominant position in the region, although alternative finance platforms (e.g. leasing companies) are developing. Equity funds (both public and private) and venture capital firms, both of which provide equity capital allowing companies to leverage debt from commercial banks, are still relatively immature. The financial sector in the EaP countries and Central Asia region is characterised by a relatively small number of larger, politically well-connected banks, competing with smaller less efficient financial institutions that have greater exposure to economic and political shocks, such as oil price volatility, devaluation of local currencies and banking fraud.

Over recent years, the profitability of local commercial banks in the region has come under pressure due to stricter capital requirements (Basel III capital and liquidity requirements limit the amount of capital available for long-term financing from banks), greater regulatory involvement, higher funding costs (especially for longer-term investments with higher risk profile), and changing customer behaviour. This has driven a process of de-risking and market consolidation, resulting in fewer but more stable and better capitalised financial institutions. The results of this have been visible in 2016-17, with growth in new net loans, stabilising or improving asset quality and market recovery (e.g. in the Russian Federation). Ukraine's banking market was loss-making in 2016, due to the massive one-offs associated with the nationalisation of Privatbank.

The overall market share for foreign-owned lenders in the EaP countries and Central Asia reached its lowest level in a decade, mainly due to the increasing market share of state-owned banks in the region (e.g. Belarus, Ukraine), but also due to lower risk appetite from leading Western banks no longer aggressively buying market share. Cross-border exposure has been decreasing, reflecting increased local re-financing activity. However, there is evidence that this trend may begin to reverse as market conditions stabilise and international banks begin to seize upon more profitable markets.

From a borrower's perspective, the relatively high cost of capital (average interest rates on local currency loans of between 10-20%), short-term maturities (6 months to 2 years), and high collateral requirements (often more than 100% of the loan value) remain among the main barriers to accessing long-term finance, including for climate-related investments. Borrowers often face foreign currency risk from devaluation events (e.g. Azerbaijan, Kazakhstan, Ukraine), particularly where companies have been encouraged to borrow in foreign currency to take advantage of lower interest rates.

This situation creates significant negative impacts for SMEs which drive economic growth in the region. SMEs often lack the necessary track record, relationships and collateral to meet the onerous lending requirements imposed by commercial banks. SMEs are often seeking relatively small loans (e.g. USD 5 000 - 15 000), which do not justify individual review by banks and are therefore subject to inflexible lending appraisal conditions. Pooling together small projects in order to improve their chances of getting access to risk mitigation instruments (grants, loan guarantee schemes) and subsequent bank financing is an area which needs further consideration. Municipal borrowers and publicly owned utilities also face challenges of creditworthiness and co-financing capacity.

As a result, borrowers' chances of accessing bank credit are significantly reduced. Some governments in the region have established mechanisms to support SMEs and other stakeholder groups in accessing long-term bank finance (loan guarantee schemes, interest rate subsidies schemes) but these are not widely used. There is scope for increased use of such schemes to support more active lending portfolios.

While foreign currency lending remains commonplace in the EaP and Central Asia countries, there is a process of consolidation and a move towards more sustainable lending models financed by domestic savings and local bond issuance. For example, the IFC recently supported the Bank of Georgia in its first local currency Eurobond issuance by investing c. USD 45 million and helping to attract more than USD 200 million from about 20 international investors. This three-year bond is the first in the past decade from a country in the EaP region other than the Russian Federation and will support local currency lending and de-dollarisation efforts. The issuance will allow the bank to boost long-term local currency financing to more retail borrowers and small and medium businesses helping them to avoid risks related to borrowing in foreign currency.

The above barriers apply equally to building markets for long term environment- and climate-related finance. However, there are a number of additional challenges on both the demand and supply side.

2.2. IFIs' role in creating a market for sustainable clean energy finance

As part of its work on access to private finance for green investments, the OECD conducted an inventory of relevant environmentally-related credit lines extended by IFIs to commercial banks and on-lent to end borrowers in the EaP region (OECD, 2016a). The analysis revealed that all major IFIs present in the region have established such credit lines (EBRD being the biggest financier) and more than 70 local commercial banks have benefited from such support. Over the past 10 years, the total value of such credit lines has amounted to approximately Euro 1.6 billion².

Generally, local commercial banks have only established specific environmental credit lines when explicitly supported by IFIs. Such credit lines aim to demonstrate the commercial viability of green financing as an attractive business model, thus laying the basis for a self-sustaining market for financing sustainable energy and energy efficiency projects. However, there is only limited evidence that such support has gone on to result in banks adopting such products without continuing IFI support.

There are several reasons why banks initially engage with IFIs on green lending products. While the cost of IFI funds is often not the lowest available to commercial banks, rates offered on IFI

² This is based on a review of published IFI credit lines to local commercial banks with a majority energy efficiency component, including those from multilateral development banks (EBRD, IFC, EIB, IBRD, ADB), national development banks (KfW, Austrian Development Bank, NEFCO) and multi-donor financing platforms (Green for Growth Fund and Global Climate Partnership Facility).

environmental credit lines may be more concessional than for other products (e.g. SME credit lines). Lower rates may be achieved through the blending of donor grant finance, or by IFI board approval based on the expected demonstration effect. Tenor is also often longer than that available elsewhere and this is a key factor for many local banks. Most credit lines are accompanied by some form of (donor-financed) technical assistance for the local financial institution. A number of local banks have received capacity building support alongside the credit line.

The OECD has undertaken work in Ukraine with the Ukrainian Export-Import Bank (Ukreximbank) to understand the challenges associated with scaling environmental finance (OECD, 2017a, forthcoming). Ukreximbank has been the largest recipient of IFI environmental credit lines in the EaP region. Ukreximbank is among the very few banks which has seen energy efficiency lending grow as an important business sector, and has developed in-house capacity to identify, assess and finance energy efficiency investments in Ukraine. The Bank's top management commitment has been crucial in developing this market.

The research confirmed that IFIs remain the primary source of long-term financing, including for SMEs and energy efficiency in the corporate, public and residential sectors. While this finance is provided in foreign currency, the terms remain more attractive than other options available to local banks. The study identified several challenges on the demand side: the lack of client awareness of clean technologies and benefits, poor capacity to prepare projects, high transaction costs of project preparation and monitoring, and unfavourable market and regulatory environment, including changing gas and electricity tariffs.

New and smarter ways of combining traditional IFI finance products by IFIs, such as loans, equity, grants, are emerging and can be used to bring down the cost of, reduce the risk on green investments and leverage private sector finance. For example, investment vehicles such as the Green for Growth Fund (GGF), established by EIB and KfW, or the Global Climate Partnership Fund (GCPF) are designed to attract commercial capital from both multilateral and private institutional investors and invest in energy efficiency and renewable energy projects, including in the EaP countries.

In addition, the Neighbourhood Investment Facility (NIF), launched in 2008, is a mechanism aimed at mobilising additional funding to finance capital-intensive infrastructure projects in EU Partnership Countries covered by the European Neighbourhood Policy (ENP) in sectors such as transport, energy, environment and social development. The NIF also supports the private sector, mainly through investment grants and risky capital operations targeting SMEs. It does so by pooling grant resources from the EU budget and the EU Member States and using them to leverage loans from European Financial Institutions as well as contributions from the ENP partner countries themselves.

The IFI role in greening the financial system in the EaP countries and Central Asia is critical: IFIs in conjunction with EU-backed facilities help create a market for clean energy products, demonstrating the commercial viability of new clean technologies and provide necessary long-term financing. However, IFIs alone cannot do all the work and IFI and donor backing cannot and should not replace domestic private financing. Governments need to do more to further support the development of green financial markets in these countries.

Issues for discussion:

- *What are the main challenges to increased green lending in the EaP countries and Central Asia?*
- *What could be done to mobilise capital markets, and commercial banks in the first place, to deliver more green lending and green investments?*
- *What can governments do to create higher demand for green investments and lending?*

Session 3. Unlocking private finance for green investment: the role of public authorities

3.1. Public policy instruments to stimulate green investments

Although underlying conditions are changing, the unattractive risk-return profile of many climate-related investments is often cited as the most important reason for the reluctance of private actors to invest in green technologies. This largely results from unfair competition created by subsidising fossil fuels and related technologies, and the perception of high investment risks (regulatory, technology, financial or political) of new greener low-carbon technologies.

To increase the attractiveness of green investments, the first best solution would be to set a price on carbon. This can be done by eliminating environmentally harmful and economically wasteful subsidies to fossil fuels and imposing a carbon tax or introducing a cap-and-trade system. However, implementing such policies is politically and socially challenging.

While considering putting in place carbon pricing, governments can use other complementary policy instruments to incentivise green investments and encourage private finance for them. These tools range from policies and legislation that can help advance environmental goals (e.g. defining energy targets, energy conservation measures and specific GHG emission reduction objectives; designing macroeconomic and trade policies that influence prices; developing regulations that discourage excessive use of energy; permitting and environmental quality standards) to public programmes that support the implementation of policy objectives (e.g. “green” procurement, provision of information, product labelling), and regulatory enforcement tools (e.g. compliance promotion, administrative and judiciary non-compliance responses).

While the main thrust of these policies is to encourage companies and households to undertake appropriate investments, market participants will respond favourably if they have the flexibility to do so at the lowest possible cost. Market instruments that reduce barriers and costs for investors to access appropriate technologies (e.g. minimal tariffs or import duties) or provide investment incentives (e.g. tax credits) encourage more cost-effective funding of environmental investments.

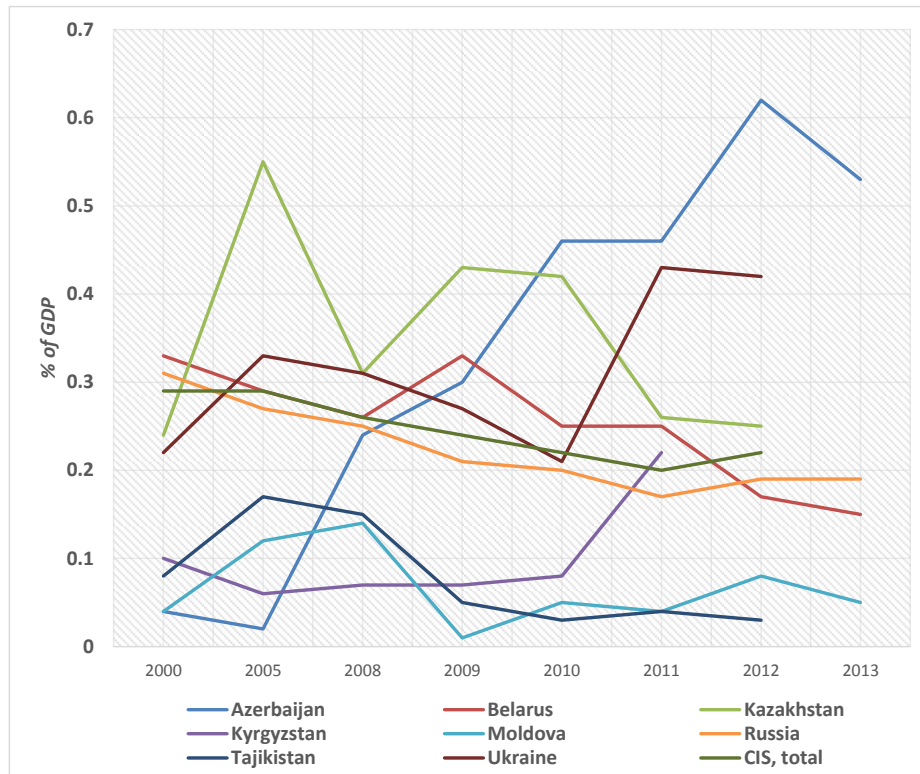
A large number of financial instruments can also be applied by the government to support the scaling-up of green investments. These include, among others, (i) instruments that provide direct financing from the budget (at the national and sub-national level), such as equity, grants, government soft loans; (ii) instruments that mitigate risks (e.g. guarantees, feed-in tariffs); (iii) instruments that help raise additional private funds (e.g. green bonds) (Lindenberg, N., 2014).

These are all well-known and proven financing instruments not specifically tailored to the needs of green financing. However, each of these instruments has its strengths and weaknesses, and if combined in a smart way, they can help better meet the needs of an investment at different phases of the project cycle. This smart combination can help reduce the investments cost and risk, and help to leverage more private finance.

3.2. Public spending on environmental and green investments in the Eastern Neighbourhood Partner countries and Central Asia

The public sector has traditionally taken the lead in long-term investment in public goods, particularly in infrastructure projects. However, most governments have had to tighten their budgets in the aftermath of the 2008 financial crisis. Available data for selected countries (CIS Statistical Yearbook, 2016) show that environmental investments have been rather low over the period 2000 - 2013, below (the maximum) 0.6% of GDP and this was the case even before the financial crisis started. For the sake of comparison, on average, the OECD countries spend on environmental and climate-related investments about 1.5-2% of GDP.

Figure 1. Investment in fixed capital for environmental protection and rational use of natural resources in selected EaP and Central Asia countries, 2000-2013, % of GDP



Source: CIS Statistical Yearbook (2014).

Despite financial and economic difficulties, most countries in the region have established public finance institutions to support investments particularly in energy efficiency and renewable energy sources. These include among others, the Belarus' Innovation Fund of the Ministry of Energy, the Energy Development Fund of Georgia and Moldova's Energy Efficiency Fund. In addition, Moldova, the Kyrgyz Republic and Tajikistan operate traditional budgetary Environmental Funds which finance a wide range of green projects, including energy-efficiency measures. These Funds are capitalised through revenue generated from pollution charges and fines, and support is provided mostly in the form of grants.

In Moldova, for example, the National Environmental Fund spent about Euro 17 million in 2016. However, in order to achieve the "conditional" targets, identified in its Nationally Determined Contribution, the government has estimated that by 2030 Moldova needs to spend about USD 4.9-5.1 billion (about USD 327-340 million per year). This will require significant efforts to mobilise massive resources from both national and international public and private sources.

In order to help governments better plan and manage their public expenditure for green investments, the OECD has designed an Excel-based model which can be used to estimate, among others, the total costs of a specific green investment programme for a given target (OECD, 2017c, forthcoming). The model calculates the optimal subsidy level and possible environmental and climate-related benefits that can be achieved as a result of programme implementation. The model is an analytical tool that can help to better inform the decision-making process and make it more transparent. The aim of this work is to demonstrate in practice how to use scarce public funds to leverage private resources (in other words, how to set the optimal subsidy rate) and incentivise the private sector to invest in green and socially important projects.

The model has been tested and applied in Kazakhstan where the OECD worked jointly with the Ministry of Energy to design a green public investment programme in line with good international practices. Similar work has been launched in Moldova. The main focus of the investment programmes in both countries is on supporting the shift to modern public transport powered by clean fuels, such as compressed natural and liquefied petroleum gas. Low-carbon mobility is gaining ground in the region.

Experience shows that blending public and private resources and leveraging private sector capital in a smart and cost-effective way can help stimulate more demand for green investments. Governments may also consider the case for establishing a special-purpose “green investment bank” (GIB), or refocusing activities of existing public financial institutions to mobilise private investment for sustainable energy infrastructure. GIBs are domestically-focused public institutions that seek to use limited public capital to leverage or “crowd-in” private capital, including from institutional investors, for low-carbon infrastructure investments. GIBs can facilitate the development of financing instruments and funds, deploy risk mitigants and transaction enablers and provide technical advice and project preparation and selection (OECD, 2017b). However, such GIBs should be seen and the need for such banks should be assessed as part of the broader ecosystem of domestic and international public institutions engaged in catalysing private and institutional investment in low-carbon infrastructure.

Issues for discussion:

- *What are the most common policy instruments that governments in the EaP countries and Central Asia use in order to unlock private finance for green investments?*
- *What reforms are needed in public support and approaches to blending of public and private finance in order to scale up financing for low-carbon and energy efficient investments?*
- *What do governments need to do in order to ensure the cost-effective use of public resources allocated for green investments?*

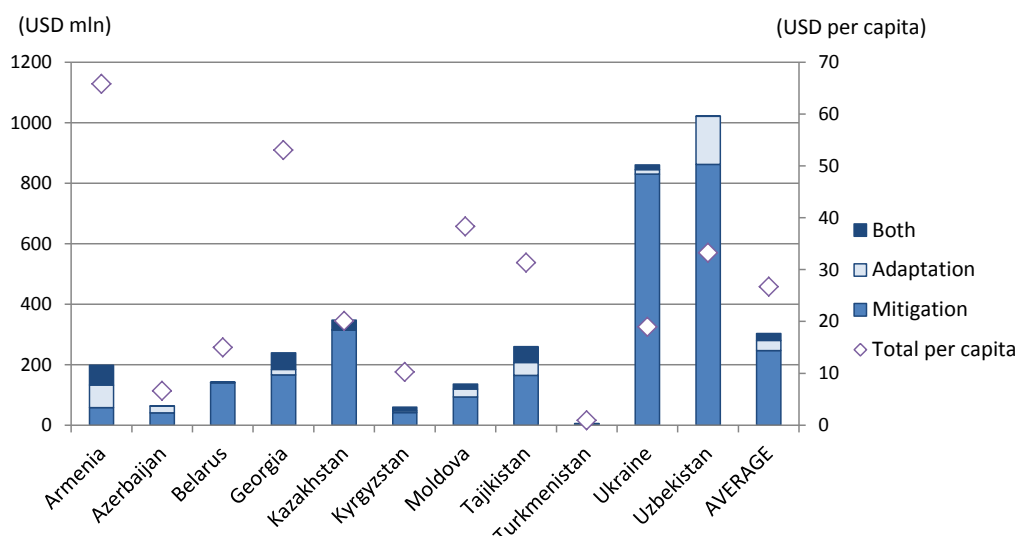
Session 4. Accessing international climate-related development finance

Private and public climate-related expenditure in the EaP and Central Asia countries can be further supplemented by resources made available through development finance sources. In the Paris Agreement on climate change, countries agreed to make “finance flows consistent with a pathway towards low GHG emissions and climate-resilient development.” Developed countries and development finance institutions are expected to continue playing an important role in mobilising climate finance from a variety of sources.

A study carried out by the OECD in 2016 (OECD, 2016) shows that a significant amount of development finance was committed by bilateral and multilateral providers of finance for climate action in the EaP and Central Asia countries (i.e. climate-related development finance). The study, that covered the period 2013 – 2014, shows that approximately, USD 3.3. billion per year of climate-related development finance was committed to the EaP countries and Central Asia. At the regional level, this amount was similar to the volume committed to each of Southeast Asia, Southeast Europe, North and Central America, South America and North of Sahara regions. And yet, there seem to remain untapped opportunities and more resources could be raised through such finance.

Among the region, the amount of climate-related development finance committed to each of the 11 countries markedly varies. In 2013-2014, the largest amounts of climate finance in absolute values were committed to Ukraine and Uzbekistan, while relatively small volumes were committed to Turkmenistan, Azerbaijan and Kyrgyzstan. On a per capita basis, Armenia, Georgia and Moldova were among the biggest beneficiaries of climate-related development finance in 2013-2014.

Figure 2: Annual climate-related development finance flows by country in the EECCA region (Annual total and per capita: average 2013-14)



Source: OECD, 2016b.

Mitigation projects received 5 times more than adaptation, particularly in the energy sector. This is consistent with the trends observed in other parts of the world. Experience shows that where mitigation and adaptation projects are combined, the private sector is more interested to finance such investments. The largest volumes of climate-related development finance in 2013 and 2014 were committed to energy generation and supply sector (e.g. generation and distribution of electricity and heat). This reflects the region's large financial needs to replace or rehabilitate aged and inefficient power plants and transmission infrastructure.

The OECD study shows that among the multilaterals, the EBRD is the major provider of climate-related finance to the region, followed by the World Bank and the EIB. Among bilateral donors, Germany and Japan play the most important role. Various financial instruments, such as grants, concessional loans, commercial-rate loans and equities, are used to deliver climate-related development finance to the EaP and Central Asia countries. Bilateral and Climate funds usually provide more concessional funding than multilateral development banks, which is very important for Lower middle income countries.

The landscape of international climate finance is rapidly evolving, but many countries struggle to seize emerging opportunities, including from relatively new sources such as the Green Climate Fund (GCF) or the earlier established Adaptation Fund. None of the countries has accessed such climate funds using direct access modalities to date due to the fact that national entities have not been accredited yet. Armenia is the only country that has got its national entity accredited so far. However, through international accredited entities, projects in four countries, namely Armenia, Georgia, Tajikistan and Uzbekistan, were approved by the GCF Board in December 2016. There are ongoing or planned GCF readiness programmes in Georgia, Kazakhstan, Moldova, Tajikistan and Uzbekistan, supported by different international institutions aiming to strengthen countries' capacities to access GCF resources.

Issues for discussion:

- *What are the main challenges to accessing international climate-related finance for the EaP countries and Central Asia?*
- *How should institutional capacities and arrangements in your countries be improved in order to better access international climate-related development finance mechanisms?*

5. Aligning policies for the transition to a green economy

Allocating significantly larger financial resources for greening of the economy will not address the challenges the EaP countries and Central Asia face, if the policies keep sending contradictory signals. A green and low-carbon future will require aligning existing economic and structural policies in areas such as tax, competition, investment, energy, transport, agriculture and others with the imperatives of a low-carbon green transition. It will also require close cooperation across government actors that have not been so far been sufficiently engaged in the development of climate policy responses.

5.1. Correcting market failures

The core principle of environmental and climate-related policy is to correct the market failure related to the absence of environmental goods from the price system that leads households, firms and financial investors not to value them at their true social price. This can be achieved in 3 main ways:

- introducing a credible long-term price on GHG emissions to disincentivise carbon-intensive economic activities, set either through a tax or through the creation of a market of emission permits;
- providing time-bound support to renewable energy and other forms of clean technologies, such as feed-in tariffs; and
- eliminating fossil-fuel subsidies.

5.1.1. Setting up a credible long-term price on GHG emissions

According to the World Bank (2016), some 40 countries and more than 20 cities, states and provinces worldwide already use carbon pricing mechanisms, with more planning to implement them in the future. Together the carbon pricing schemes now in place cover about half of these countries' emissions.

A tax on GHG emissions requires companies to pay for every tonne of CO_{2e} they emit at a predetermined rate. Under a cap-and-trade system, referred to also as an emission trading system (ETS), predetermined caps on GHG emissions are enforced for companies with a corresponding number of allowances or permits allocated or auctioned by authorities from a fixed pool. If companies need less or more allowances to match actual GHG emissions, they can trade them with other companies. Under an ETS, governments can distribute some permits free of charge to targeted industries to ease the transition. Of the existing schemes, the European ETS is the oldest one. However, over the years it has been plagued by a number of problems, most notably the generous allocation of free permits to existing industries. This has resulted in a very low price on carbon, which today is around USD 5 per tonne. To send effective price signals to influence investment decisions, including in the energy sector, experts think the price of carbon should be raised up to USD 30 today, rising per roughly 5% a year. Falling prices on renewable energy and clean technologies further reinforce the need for a price on carbon that reflects the cost incurred by the use of fossil fuels on climate, environment and society.

Of the countries of the EaP and Central Asia region, only Kazakhstan so far has introduced a carbon pricing mechanism by establishing an ETS. The ETS was launched in 2013 and it regulates GHG emissions by companies exceeding a set level of their emissions and operating in the oil and gas, energy, mining and metallurgical sectors, chemical industry, processing industry. The threshold for regulated entities is twenty thousand tonnes of CO₂-equivalent and above. Allowances were allocated freely for the first three years of the ETS (2013-15) using different baseline years. Since April 2016, the ETS has been partially suspended until 1 January 2018 due to the need to improve related legislation and the reconsideration of the current approach to allocation of allowances. Both EU's and Kazakhstan's experiences show the complexity of setting an optimal

price on carbon. But these experiences are also a valuable source of knowledge for other countries to learn from should they embark on this policy path. In addition, in April 2017, the Ministry of Environment of Ukraine presented a roadmap for the establishment of a national emissions trading system in the country. A related draft law is expected to be submitted to the Parliament by the end of 2017.

Stronger price signals would help to provide a level playing field, but would need to be complemented by other measures to meet the well below 2°C objective. Because of the weak carbon price, subsidising renewables (e.g. feed-in tariffs) and energy efficiency investments is still necessary but the costs of some renewable technologies have recently drastically decreased and they are becoming commercially viable.

There are different policies that can be used to encourage the development of new renewable capacity and energy efficiency including, among others, renewable electricity standards, tax reductions on purchasing renewable generation equipment, power purchase agreements, energy efficiency certificates that confirm end-use energy savings.

Feed-in tariffs (FITs) are among the policy tools most widely applied in the EaP and Central Asia countries (Armenia, Belarus, Ukraine, Kazakhstan, among others). A FIT programme typically guarantees that customers who own a FIT-eligible renewable electricity generation facility, such as a roof-top solar photovoltaic system, will receive a set price from their utility for all of the electricity they generate and provide to the grid.

The EaP and Central Asia governments provide support to energy efficiency and renewables but on a rather limited scale. Only Belarus and Ukraine provide sizeable support to energy efficiency and renewable energy in the region, such as biomass, wind and solar. Hydropower, including small hydropower, remains the main renewable energy source in the Caucasus.

To support policy-makers, the EU has launched the "EU4Energy" programme which supports evidence-based energy policy-making in the region. Expected results include prioritising of energy efficiency policies and measures across the sectors of economy, quantifying the energy efficiency gains potential, and further progress in preparation, adoption and implementation of energy efficiency legislation.

5.1.2. Energy subsidies in the Eastern Neighbourhood Partner countries

Reducing support to fossil fuel production and consumption and re-directing the generated savings to investments in renewables and energy efficiency is one way of supporting the transition to a low-carbon economy.

A recent survey of energy subsidies in the EaP countries conducted by the OECD (OECD, 2017b, forthcoming) revealed a number of support schemes in the region. The analysis looks at government support to both producers and consumers of fossil fuels, including coal, oil, natural gas but also electricity and heat generated by these fuels. In addition, the study also analyses support that goes to energy efficiency and renewable energy sources in the EaP countries. Given the complexity of energy subsidisation, the main goal of this work was not only to identify and estimate the amount of government support that goes to fossil fuels but also to introduce more transparency and allow governments to better understand the fiscal and environmental costs of these subsidies for the public budgets and society. In conducting the analysis

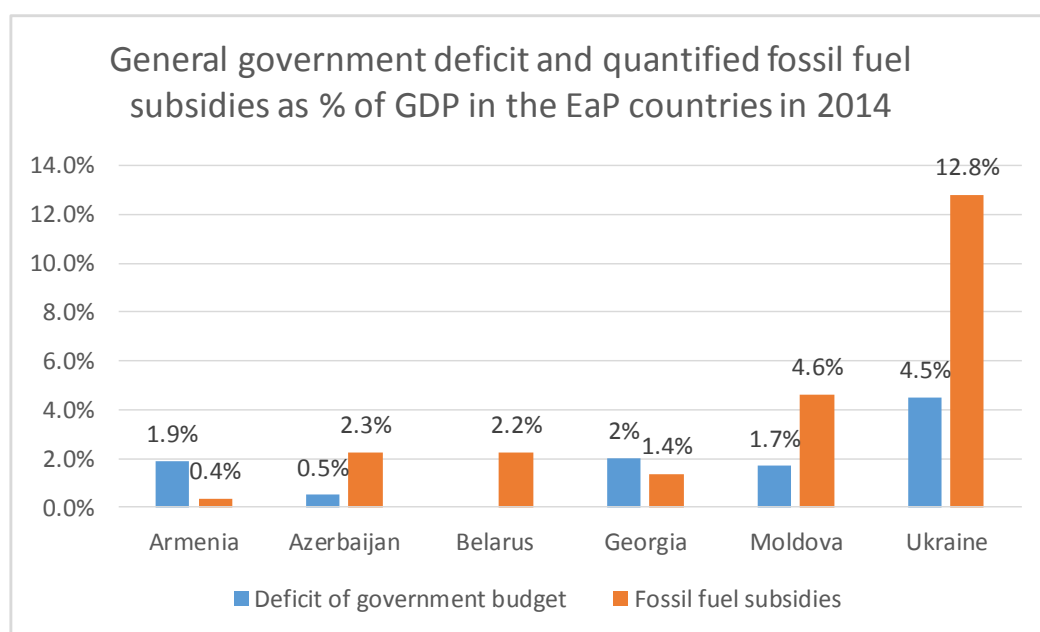
The bulk of fossil fuel subsidies in the EaP region goes to heat, natural gas and electricity. Prices for petroleum products are regulated only in Belarus and Azerbaijan. During the reviewed period (2012-2015), coal subsidies were significant in Ukraine only.

Natural gas is the most subsidised fossil fuel in the region. This is not surprising given that natural gas dominates the energy mix and is a staple feedstock for electricity and heat generation in

the EaP countries. In 2015, we find significant natural gas subsidies in both Azerbaijan (USD 1.7 billion) and Ukraine (USD 3.1 billion). On balance, our analysis does not reveal natural gas subsidies in Armenia, Belarus, Georgia and Moldova. But in the case of Belarus and Georgia below-market prices for natural gas supplied to households are just covered by cross-subsidies from commercial users.

Comparing the annual values of the quantified fossil fuel subsidies with the national budget deficits in the EaP countries in 2014, the latest year for which the estimates were available, shows that in Azerbaijan, Moldova and Ukraine, fossil fuel subsidies were larger than national budget deficits, at 2.3%, 4.6% and 12.8% of GDP, respectively.

Figure 3. General government deficit and quantified fossil-fuel subsidies as % of GDP in the EaP countries, 2014



Source: OECD, 2017b (forthcoming).

By mechanism and beneficiary, regulated energy prices that are set at below market rates and benefit consumers are by far the most significant form of subsidisation in the EaP countries. Cross-subsidies between energy producers and consumers are another widespread mechanism.

In the EaP region, stakeholders in the energy policy and expert circles are well aware of the cost-recovery issues in the energy system and existing cross-subsidies. However, recognising these policies as subsidies is rather uncommon. The EaP countries are in the constant process of designing and implementing energy pricing reform even though they are not always framed and discussed as the reforms of energy subsidies. Energy pricing is particularly sensitive in terms of the need to protect socially vulnerable groups.

While the reform of energy subsidies is both complex and politically sensitive, it is truly at the heart of the green transition and sustainable development. The EaP countries have already accumulated a wealth of experience reforming their energy subsidies that can help them move further along this challenging, but unavoidable path.

For example, in Ukraine, the Ministry of Regional Development, Construction, Housing and Communal Services with support by Germany and the European Union is currently implementing an Energy Efficiency Reform focusing on the residential building sector. This reform is multi-faceted but turning inefficient subsidies into energy efficiency investments lies at its heart which also helps to tackle the immense investment needs in the sector. Savings from reduced energy-related social

subsidies after energy efficiency investments are implemented create a revenue stream, which is consolidated through a newly established Energy Efficiency Fund. Recently the Law on the Energy Efficiency Fund was adopted by the Parliament. EU and Germany have already committed to contribute to the Fund's activities to kick-off initial subsidy savings, while IFC has agreed to set-up a Multi-Donor Technical Fund to manage donor funds. Ukraine has recognised that the country's energy independences passes through significant energy efficiency improvements.

In this context, it is worth noting that Commissioner Hahn has launched a high level energy efficiency initiative in 2016 together with the EBRD, EIB, World Bank, IFC and the IMF, in which IFIs agreed to actively collaborate to bring to scale energy efficiency reforms and investments. Targeted work has already started in selected pilot countries - Ukraine, Georgia, Tunisia and Serbia. This initiative has a specific focus on energy efficiency in buildings as buildings account for up to 40% of energy consumption in many countries in the region. Despite the existence of great potential for significant energy saving, relatively little investment has been made in this area, with the legal and regulatory framework often being a key barrier to the attraction of adequate levels of sustainable investments. Work has also already been initiated to create the necessary political leverage to foster reforms, among others, through joint missions and increased coordination of planned activities. This approach is already delivering tangible results in Ukraine, where the Commission, as mentioned above, has, jointly with the government and IFI partners, supported work on establishing a dedicated Energy Efficiency Fund.

5.2. Stranded assets

Continued support to fossil fuel production and consumption questions the logic of the low-carbon transition and raises the issue of potential risks and related losses that could result from climate policy. Climate change is not only an environmental risk it is an investment risk as well.

Analysts generally identify two main types of climate-related risks: physical (extreme weather events, heavy flooding and drought) which have direct impacts on households and businesses but also financial risks which can affect the balance sheets of their insurance companies and commercial banks that they have borrowed from. The reduction in greenhouse gas emissions implies movement away from fossil fuel energy and related physical assets. This coupled with rapidly declining costs and increased deployment of clean and energy-efficient technologies could have significant, near-term financial implications for organisations dependent on extracting, producing, and using coal, oil, and natural gas (Task Force on Climate-related Financial Disclosures, 2016).

The financial risk is closely related to climate-related policies. If a robust carbon price were introduced many companies which hold high-carbon physical assets may need to reconsider their investments and even write them off which can lead to a significant reduction of the market value of such assets. This, in turn, can affect the investors that have invested in the assets, including public financiers. In addition and as a result of new climate policies, demand for fossil fuels may go down and the future revenue stream generated by the industry may significantly diminish. Obviously, the energy sector is particularly susceptible to such losses.

One particular potential impact resulting from new climate-related policies, known as "stranded assets", poses a particular concern to companies, investors and policy-makers. Stranded assets are discussed in the context of capital investments made in fossil fuel infrastructure which will not be recovered over the operating lifetime of the physical asset because of reduced demand or reduced prices. In the face of the climate constraint some actors have begun reconsidering their investments on moral, political, economic or financial grounds. Actions range from complete to partial divestment from coal, oil and gas companies and electric utilities to stress-testing investment portfolios, to maintaining the status quo (OECD, 2015).

Most of the discussion on "stranded assets" focuses on the systemic risk of decarbonisation to the financial sector and investors who are exposed to private, international, listed fossil energy

companies. However, it is important to include publicly-owned assets in this debate as well. Governments and state-owned companies own and control the vast majority of the world's proven fossil energy reserves and carbon intensive built infrastructure, in particular in transition and developing countries.

Many of these countries have historically developed a comparative advantage in energy and carbon intensive sectors, whether extractive, energy or manufacturing. These sectors often employ a significant share of domestic labour force, generate a bulk of export revenues and provide the opportunity to increase national wealth. Such countries are even more exposed to transition risks and more vulnerable than multinational corporations because they are often less flexible and less able to adapt to external policy shocks.

The low-carbon transition and the risks of stranded assets bring the debate on economic diversification in resource-intensive countries to a new level. Both the World Bank and the EBRD are conducting significant analysis on this topic in a number of countries. As part of its work on "Climate strategies of carbon dependent countries: Diversification and cooperation under uncertainty about the impact of the climate change response measures", the World Bank has modelled various policy and development scenarios of the "stranded assets" impact in 15 different regions and countries, including in Kazakhstan. The project highlights challenges for carbon dependent countries and the results suggest that traditional diversification of products and exports may not be sufficient to build the economic flexibility and adaptability required to achieve resilience to future technological and policy shocks, augmented by climate change. Deep diversification of national assets portfolios, including investments in knowledge and institutions, is a prerequisite for successful strategies to manage future risks. Complementing the World Bank analysis, the EBRD is working closely with the Ministry of Finance in Kazakhstan focusing on the fiscal implications of future decarbonisation measures and diversification of national fossil fuel-intensive asset portfolios in the country.

There are also significant costs involved in delaying action to reduce emissions. Countries may be tempted to delay decarbonisation for several reasons, including the long-term nature of the climate threat and political resistance based on perceived short-term risk of economic, distributional or competitiveness impacts of climate policies. Such a delay would simply increase the transition costs and require a more abrupt adjustment when action does finally start.

Issues for discussion:

- *What are the roles of carbon pricing and the phase-out of fossil fuel subsidies in ensuring a cost-effective decarbonisation of energy systems? What may be the implications of such actions on national economies in the EaP countries and Central Asia?*
- *How can the energy sector achieve a transition to a low-carbon, reliable and secure energy sector at reasonable costs?*
- *Assuming a timely and effective low-carbon energy transition, what is the outlook for stranded assets in the EaP countries and Central Asia?*

Session 6: Exploring new avenues

Traditional sources of private capital, such as commercial banks, are not the only source of private financing; the low-carbon transition can mobilise new sources of capital and new financial instruments.

Capital markets provide a variety of long-term financing options through debt and equity. Bonds are the main debt instrument and can be issued by governments, public financial institutions or, to a lesser extent, companies. Equity can be provided by both public and private actors. The role of institutional investors, such as Pension Funds and Sovereign Wealth Funds, in financing long-

term debt, including for green investments, has been increasing in the OECD countries over the past several years. New financing instruments, such as crowdfunding, and new types of investors, such as angel investors, are also emerging.

All these developments in the capital markets have called for the birth of new standards and good practices to guide the socially responsible business of the industry. Recently, UNEP Finance Initiative adopted the Principles of Positive Impact Finance which seek to address the Sustainable Development Goals financing gap (UNEP FI, 2015). The development of a dedicated set of Principles to guide financiers and investors in their efforts to increase positive impact on the economy, society and the environment, constitutes a central component of the Positive Impact Roadmap developed as part of this initiative. In addition, the Equator Principles³ is the leading framework for determining, assessing and managing environmental and social risk in investments, and improving the environmental due diligence of projects to inform investment decisions. These Principles are currently adopted by 90 financial institutions, mostly commercial banks, in 37 countries. No banks from the EaP countries and Central Asia have joined this initiative yet.

All these new sources of green finance and new principles aimed at guiding investors in the new climate era come together to help bridge the financing gap in transitioning to a green economy. Banking and monetary policy, more generally, can also be used to stimulate increased supply of green investments. Some of these issues, instruments and types of investors are briefly discussed below.

6.1. The role of the banking and monetary policy in financing the transition to a green economy⁴

The financial risks related to the low-carbon transition have increasingly attracted the attention of central banks and other institutions responsible for financial stability, some of which have started developing methodologies to stress-test their financial systems for climate-related shocks (e.g. Bank of England, Bank of France). It is still unclear to what extent the financial industry has also begun to acknowledge the existence of climate-related financial risks and if longer term transition risks are internalised in asset prices.

In order to incentivise commercial banks to steer bank lending away from high-carbon activities, some analysts have looked into the possibility to use banking and monetary regulations to this end. Unlike in the OECD countries where the main instrument of monetary policy is the reference interest rate (the price of reserves) through which central banks control the price of money on the market, central banks in emerging and transition economies prefer to keep a stronger control on the quantity of reserves. Central banks in non-OECD countries also have a broader array of policy tools, such as caps on debt-to-income ratio and ceilings on credit growth. This can make it easier to potentially introduce new climate-aligned macro-prudential⁵ regulations into the existing system.

In the absence of an effective price on carbon, greening banking regulations may be yet another way to encourage more financing for low-carbon investments in the non-OECD countries. One example of such "green" banking policy is the introduction by the central bank of differentiated reserve ratio requirements directed in favour of low-carbon projects. Reserve ratio requirements relate the amount of reserves that a bank keeps, and not use to lend to borrowers, i.e. the higher the reserve requirements, the less capital available for lending. Differentiating reserve requirements implies different reserve requirements for different banks depending on the destination sector of

³ <http://www.equator-principles.com/>

⁴ Based on Campiglio (2014).

⁵ Macro-prudential regulation is the approach to financial regulation that aims to mitigate risk to the financial system as a whole (or "systemic risk"). The approach was introduced in the aftermath of the late-2000s financial crisis.

lending. In the case of green differentiated reserve requirements, the reserve ratio that banks have to satisfy would be lower than average for loans directed towards low-carbon sectors. Given that banks obtain their profits from lending and that a lower reserve ratio expands the potential amount of credit that a bank can create, this policy could give an incentive to commercial banks to direct bigger lending amounts to green investments.

Central Banks could also apply differentiated capital requirements depending on the type of lending a commercial bank provides or use their collateral framework to support assets issued by low-carbon firms or linked to low-carbon projects. Central Banks can also recommend the incorporation of environmental, social and governance (ESG) criteria into asset risk assessment conducted by commercial banks.

These and other "softer" measures that can be used to guide the commercial banks towards more sustainable and responsible lending present a new way of using macro-prudential regulations to the benefit of creating more and greener banking products. While some of these practices may be less relevant for the OECD countries, China is one country where these tools have been actively promoted and are being introduced.

6.2. New debt instruments

6.2.1. Green bonds

A bond is a fixed-income debt instrument which allows the bond issuer to raise money (debt) from bond holders against the obligation to repay the debt over a certain period of time and at a certain interest rate. Bonds are traditionally used to raise debt for big infrastructure projects which need a significant amount of financing which makes bond finance a natural fit for low-carbon infrastructure assets such as renewable energy infrastructure, which is characterised by high upfront capital costs and long-term income streams (OECD, 2017d).

In many ways, a green bond is similar to a regular bond, the main difference being the commitment of the bond issuer to exclusively use the funds raised through the bond to finance or re-finance "green" projects, assets or business activities. As such, green bonds provide an opportunity to mobilise capital for green investments. Green bonds offer an opportunity to investors to make informed, explicit decisions to invest in green projects.

The green bond market can provide an additional source of green financing to bank lending and equity financing, and enable long-term financing for green projects in countries where the supply of long-term bank loans can be limited. The demand for green bonds has significantly grown with pension funds and insurance companies diversifying their investment portfolios. The concept of green bonds was launched almost 10 years ago, by leading development finance organisations such as the World Bank, the IFC and the EIB, together with pioneering investment banks.

The total issuance of green bonds was around USD 95 billion by the end of 2016 (OECD, 2017d). China accounted for about a third of the 2016 volume, with USD 32 billion. In light of global commitments to shift to a low carbon economy, the green bond market is expected to continue to grow, while attracting more diverse issuers and investors. It is expected that green bonds worth more than USD 150 billion will be issued in 2017 (Climate Bond Initiative, 2017). Currently, Europe is leading the green bond market, with numerous Europe-based mutual funds focusing on green bonds. The EU is in the process of boosting the market for green bonds for infrastructure and SMEs.

Despite the rapid expansion of the green bond market, green bonds account for less than 1% of global bond issuance annually (OECD, 2017d). At the same time experts claim that there are many bonds whose proceeds are used to finance low-carbon projects but they are simply not labelled as green. There are actually a number of issues particularly related to bond "greenness" that investors are raising: What definitions are being used to define an asset as green? How are

green assets selected and how are environmental benefits defined? How are the funds and projects segregated and tracked? How is all this reported to investors and other stakeholders (OECD, 2017)?

The lack of universal rules and standardisation is a shared and enduring source of concern cited by market participants. A number of actors have started working on developing commonly accepted definitions and standards. The Green Bond Principles have largely standardised governance – i.e. use of proceeds, tracking and reporting. But there are many different standards applied for assessing and verifying the Green-ness of Green bonds and these need further harmonisation.

Despite previous experience of some countries in the region with municipal bonds for water supply and sanitation infrastructure (e.g. Ukraine, Kazakhstan) none of the EaP countries and Central Asia seems to have issued green bonds so far to finance low-carbon investments. However, Ukraine is considering the creation of a green bond market and have prepared “Green Bond Guidelines: Roadmap for Ukraine”. The introduction of green bonds is also being considered in Kazakhstan.

6.2.2. Crowdfunding

Traditionally, financing a business, project or venture involved asking a few individuals for large sums of money. Crowdfunding switches this idea around and raises finance by asking a large number of individuals for small amounts of money each. Crowdfunding uses the Internet to talk to thousands – if not millions – of potential funders. Typically, those seeking funds will set up a profile of their project on a website. They can then use social media, alongside traditional networks of friends, family and work acquaintances, to raise money.

There are three main types of crowdfunding. The first is *donations*. People invest simply because they believe in the cause. Donors have a social or personal motivation for putting their money in and expect nothing back, except perhaps to feel good about helping the project. With *debt crowdfunding* investors receive their money back with interest. Also called Peer-to-Peer (p2p) lending, it allows for the lending of money while bypassing traditional financial institutions. Returns are financial, but investors also have the benefit of having contributed to the success of an idea they believe in. In the case of *equity crowdfunding*, people invest in an opportunity in exchange for equity. Money is exchanged for a share, or a small stake in the business, project or venture. As with other types of shares, if it is successful the value goes up. If not, the value diminishes.

There is experience, albeit very limited, with crowdfunding in the region. Moldova and Ukraine have launched some crowdfunding work aimed at partially supporting green initiatives. For example, a crowdfunding platform called Guvern24 (<https://guvern24.md/en/about-us/>) was created in Moldova at the beginning of 2016. This platform supports both public and private projects in all areas (community, business, culture, education, sport, science and charity). Since Moldova is one of the countries with a very high proportion of migrants (1/3 of total population), the UNDP “Migration and Local Development” project supports engaging migrants for sustainable local development. More than 20 local public service development projects were launched in the UNDP target communities and placed on the local crowdfunding platform Guvern24, to be financed and implemented by local governments with contributions from migrants. These projects are focused mostly on improving local public services, such as modernisation of green park areas, renovation of health and sport centres. It is expected that the funds for these projects will come from the following sources: 50% grants from donors, 20% from migrants' contributions and 30% from local public authorities' budgets.

6.3. Emerging institutional investors

With USD 92 trillion of assets under management in OECD countries in 2013, institutional investors such as pension funds, insuring companies and sovereign wealth funds could play a

bigger role in driving long-term investments in a low-carbon economy (OECD, 2016c). Funding coming from institutional investors is expected to increase in both scale and influence over the next decades due to greater wealth and the growing need to cater to ageing populations in both OECD and non-OECD countries.

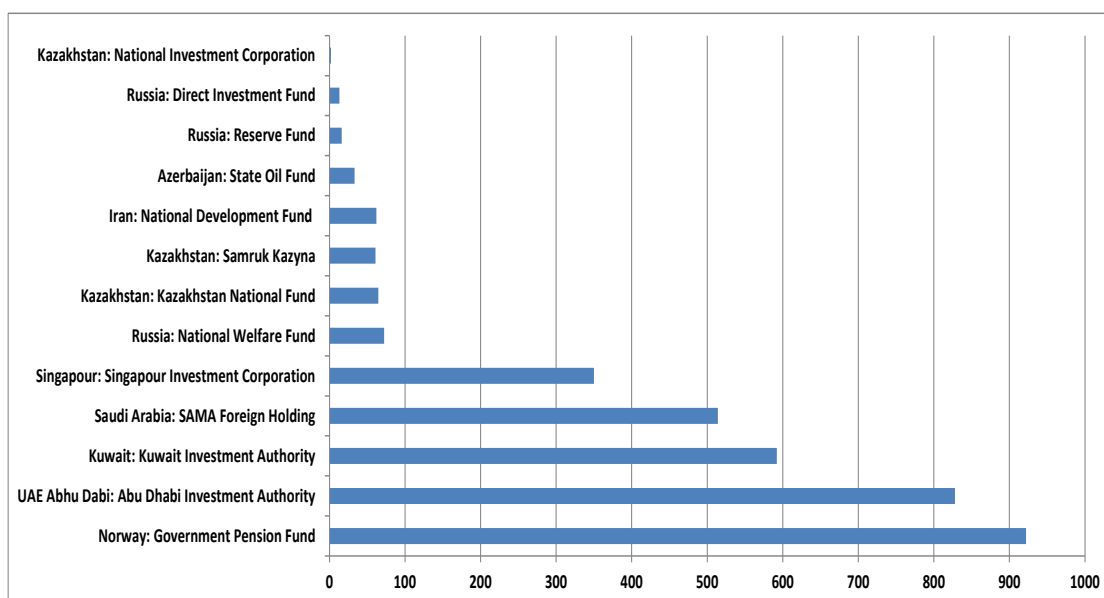
6.3.1. Sovereign Wealth Funds

Sovereign wealth funds (SWFs) currently have a limited role in climate finance and green investment, which is even below the average for institutional investors. According to the OECD (2016c), green investments represented only 0.7% of the value of all reported SWF deals between 2006 and 2016, or 3.6% of infrastructure, energy, and utility investments. However, new initiatives such as the Portfolio Decarbonization Coalition mentioned above, can bring a positive change in the greening of the investment policies of these actors.

SWFs, usually funded by revenues from energy exports, are state-owned investment vehicles, which invest in a range of financial assets, from stocks and bonds to real estate and precious metals. The main purpose of such Funds is to maximise the long-term return from their investments. These funds are designed to act as a buffer to oil price volatility, as currently seen in the oil market, but also fund social and economic development in the countries.

SWFs manage massive resources amounting to trillions of USD. The biggest of these Funds is the Government Pension Fund of Norway which manages an asset portfolio close to USD 1 trillion, followed by rich-oil Middle Eastern Funds in Kuwait and Saudi Arabia. Apart from the Russian Federation, all three net energy exports in the region, Azerbaijan, Kazakhstan and Turkmenistan, have also established SWFs in one form or another. Kazakhstan's three SWFs, Kazakhstan National Fund, Samruk Kazyna and National Investment Corporation, jointly manage assets to the tune of USD 130 billion. Azerbaijan's State Oil Fund asset portfolio is about USD 33 billion. No information on the size of the Turkmenistan Stabilisation Fund is available in the public domain.

Figure 4: Selected SWF by assets under management, USD billion



Source: SWF Institute: <http://www.swfinstitute.org/sovereign-wealth-fund-rankings/> .

If properly mandated and redirected, and where they exist, these Funds could potentially become significant sources of long-term finance for green investments. In Kazakhstan, for example, Samruk-Green Energy is implementing a number of projects on renewables (through equity and loan guarantees for Renewable Energy Solar Photo-Voltaics) to achieve the 2020 target for

renewables upon requests by the President and the Government. However, compared to its main investments in the oil, gas, mining and transportation sectors and the value of its assets, these green investments are negligible (EBRD, 2017).

While changing the course of such Funds may seem like a "mission impossible" experience from Norway and Ireland shows that much can be done. Following the Ministry of Finance guidelines, Norway's Fund decided in 2016 to divest from energy companies that derive more than 30% of their revenues from thermal coal. Sixty nine companies have been excluded from the Government Pension Fund since then and 13 other companies have been placed under observation for potential non-compliance. In January 2017, the Irish Parliament voted to divest its SWF, the USD 9 billion Ireland Strategic Investment Fund, fully from fossil fuels (coal, oil and gas) and redirect investments in line with the Paris Agreement goals. The Parliament decision is expected to pass into law in Ireland in the next months. When passing the decision to law, Ireland would become the first country in the world to fully divest its sovereign wealth fund from fossil fuels.

At its 2016 annual meeting, the International Forum of SWFs agreed to explore the investment implications for SWFs of the global commitment to curb greenhouse gas emissions. Both Azerbaijan and Kazakhstan are members of the group. The Forum agreed to convene a working group to introduce its members to the major questions raised by the climate change challenge. The Group is working on identifying pressing issues and opportunities with a view to establishing a long-term programme on this subject. The Working Group is scheduled to report back at its meeting on 5-8 September 2017 in Astana.

6.3.2. Pension Funds

Although institutional investors have increased their equity and debt investment in low-carbon projects in recent years, these investments remain minimal compared to the scale of their assets. Looking at large OECD pension funds only, direct investment in infrastructure projects of all types accounted for 1% of their asset allocation in 2013. Green infrastructure, including clean energy, is estimated to account for an even smaller share (OECD, 2016c).

OECD public pension funds have so far had a limited green finance agenda. Pension funds and other institutional investors usually invest in relatively long-term low-risk assets which deliver financially. OECD governments are expected to play a role to stimulate and develop the market, ensuring that adequate deals (that is highly rated, transparent, liquid and standardised securities) at scale come to the market for pension funds to invest in. The new 2016 EU Institutions for Occupational Retirement Provision II Directive will activate pension funds in the EU to take environmental concerns into account in their decision making and disclosure.

There are already forerunners in this field among the OECD countries. In 2016, the Swedish Pension Fund (AP4) allocated 21.8% of its global equity portfolio to low-carbon projects. AP4 aims to decarbonise its entire global equity portfolio by 2020. Similar initiatives are taking place in other OECD countries as well (e.g. the Portfolio Decarbonization Coalition in the USA embracing 28 institutional investors have pledged to gradually decarbonise a total of USD 600 billion by designing investment portfolios with a smaller climate change impact).

Current regulatory requirements generally prevent Pension Funds in the EaP and Central Asia countries from investing in "risky" assets. The World Bank (Gould, David Michael, and Martin Melecky (2017) estimates that on average 65% of investments by pension systems in the region are in low- or zero-return government securities or bank deposits. While such prudential regulations reflect the immaturity of the system and the concern of the state to protect the principal value of the Funds, governments may consider relieving some of these requirements and allow some level of investment in low-carbon projects as in the OECD countries.

Even where such requirements have been lifted, as in Kazakhstan, the Pension Fund portfolio remains heavily weighted towards government or quasi-government securities. As of 1 January 2017, government and state-owned company bonds represented 57% of all pension fund assets in Kazakhstan. By contrast, the Fund owned USD 250 million domestic corporate bonds representing just 1.25% of the total portfolio. Unlike many of the other countries in the region, Kazakhstan's pension fund represents a substantial and growing potential source of long-term capital. Pension fund assets have been consistently growing and as of January 2017, they reached 15% of GDP (GreenStream, 2017).

Issues for discussion:

- *Is there a role for central banks to play in steering commercial bank investments towards financing green projects more pro-actively?*
- *Can issuing green bonds be a realistic option to raise additional finance for green investments in the EaP countries and Central Asia?*
- *Is there a role for new institutional investors in the EaP countries and Central Asia in financing the transition to a green economy?*
- *Which of these "new issues" would be of interest to the EaP countries and Central Asia and would require further policy work?*

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