Green Finance and Investment

Access to Private Finance for Green Investments

ENERGY EFFICIENCY AND RENEWABLE ENERGY FINANCING IN UKRAINE

OECD

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Partnership for Environment and Growth

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OECD
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Foreword

Commercial banks have an important role to play in providing access to green finance. However, under the current market conditions in the EU Eastern Partnership (EaP) countries, their involvement remains limited. Generally, commercial banks have only established specific environmental credit lines when supported by International Finance Institutions (IFIs), and only a small number continue to offer such products once IFI support is withdrawn. Learning from the design and implementation of such credit lines can provide useful insights into what could be done to increase the capacity and willingness of the banking sector to finance green investments.

This report reviews the experience of developing environmental credit lines in Ukraine and using them to lend to energy efficiency and renewable energy sources. It also reviews the macro-economic and political context for green investments in the country before looking in more detail at the role and capacity of the banking sector and the policy environment for sustainable energy. Further, the report examines the experience of the State Export-Import Bank of Ukraine (Ukreximbank) to assess the barriers it has encountered in developing a successful sustainable energy-lending portfolio, and to identify key success factors from the institutional perspective. Ukreximbank is well placed to take part in this analysis, as it is the biggest local financial institution that benefits from IFI-supported environmental lines in the EaP region. The Bank's staff have acquired first-hand experience and knowledge of domestic demand for green finance. The lessons learned from this experience can help guide policy makers on what they can do to encourage more demand for green lending.

The preparation of the report was led by Nelly Petkova (Organisation for Economic Co-operation and Development (OECD) and the report was drafted by Matthew Savage (Oxford Consulting). We are grateful to colleagues from Ukreximbank, and particularly to Sergiy Khudiyash and Olha Fedorenko, for their time, valuable input, support and patience throughout the project. Liudmyla Musina of the Ministry of Economic Development and Trade was supporting the team throughout all stages of the project. Without the personal commitment of these colleagues, this project and this report would not have been possible.

Special thanks go to Torsten Woellert and Krzysztof Gierulski of the Special Group for Ukraine at the European Commission, who provided valuable feedback and suggestions on an earlier draft of the report. We would also like to extend our thanks to Andriy Frolov and Igor Gorovih of the State Agency on Energy Efficiency and Energy Saving of Ukraine for their constructive comments on the report. Krzysztof Michalak (OECD), Oxana Yavorskaya (EBRD Ukraine), Serhiy Porovskyy (UNIDO Ukraine), Volodymyr Vysotskyi (AB "Ukrgasbank") and Daniel Fjærtoft (Sigra Group) reviewed the report and shared their ideas with us. Dmytro Glazkov (World Bank Ukraine) was particularly helpful in this project and his insights and contribution to this work are very much appreciated. Participants at the stakeholder meeting held on 25 April 2018 in Kyiv discussed the major findings of the report and the debate helped us improve further the analysis.

Irina Belkahia and Aleksandra Bogusz, both of the OECD, provided overall administrative support for the project and helped with formatting the report. The report was prepared in Ukrainian by translators from Dialog-Kiev under the supervision of Ivan Shevchenko and Ihor Khmarsky. Victoria Elliott edited the report in English and Peter Vogelpogel did the typesetting and the layout of the final manuscript. Janine Travers and Lupita Johanson of the OECD assisted with the processing of the publication.

All these contributions are gratefully acknowledged.

This study forms part of a larger OECD project examining the conditions that would enable commercial banks in the EaP countries to support green investment. The study has been conducted within the framework and with the financial support of the "Greening Economies in the European Union's Eastern Neighbourhood" (EaP GREEN) project. Its aim is to support the six Eastern Partnership countries (Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova and Ukraine) to move towards a green economy, by decoupling economic growth from environmental degradation and resource depletion. This study was also supported by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, through its International Climate Initiative.

The views expressed in this report are those of the authors and do not necessarily reflect those of the European Union, the OECD or the respective member countries.

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Abbreviations and acronyms

AAU	Assigned amount unit
CEE	Central and Eastern Europe
CHP	Combined heat and power
COP	Conference of the Parties under the United Nations Framework Convention on Climate Change
DCFTA	Deep and Comprehensive Free Trade Arrangement
EaP	European Union Eastern Partnership
EaP GREEN	EU-supported "Greening Economies in the European Union's Eastern Neighbourhood" Project
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EE	Energy efficiency
EEP	Energy efficiency project
EIB	European Investment Bank
EnPC	Energy performance contracting
ERU	Emission reduction unit
ESCO	Energy service company
ETS	Emissions trading scheme
EU	European Union
FDI	Foreign Direct Investment
FER	Fossil energy resource
FI	(Local) Financing institution
FOB	Foreign owned bank
GCPF	Global Climate Partnership Fund
GDP	Gross Domestic Product
GGF	Green for Growth Fund
GHG	Greenhouse gas
GIS	Green investment scheme
GoU	Government of Ukraine

HVAC	Heating, ventilation and air conditioning
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFI	International Finance Institution
IMF	International Monetary Fund
INDC	Intended Nationally Determined Contribution
IPMVP	International performance measurement and verification protocol
IRENA	International Renewable Energy Agency
IRR	Internal rate of return
JI	Joint Implementation (project)
KfW	Kreditanstalt für Wiederaufbau, German government-owned development bank
MoU	Memorandum of Understanding
MRV	Monitoring, reporting and verification
NAER	National Agency for the Effective Use of Energy Resources
NBU	National Bank of Ukraine
NEFCO	Nordic Environment Finance Corporation
NIB	Nordic Investment Bank
NPL	Non-performing loan
NREAP	National Renewable Energy Action Plan
OECD	Organisation For Economic Co-Operation And Development
PMR	Partnership for Market Readiness (of the World Bank)
PPP	Public-private partnership
PPP	Purchasing power parity
RD&D	Research, development and deployment
RES	Renewable energy sources
SAEE	State Agency on Energy Efficiency and Energy Saving
SEIA	State Environmental Investment Agency
SHP	Small hydro power
SME	Small and medium-sized enterprise
SOB	State-owned bank
TPP	Thermal power station
UAH	Ukrainian hryvnia
UKEEP	Ukraine Energy Efficiency Programme
Ukreximbank	State Export-Import Bank of Ukraine

UNFCCC	United Nations Framework Convention on Climate Change
USD	US dollar
VAT	Value added tax
YTD	Year to date

Units of measurement

CO_2	Carbon dioxide
Gcal	Gigacalorie
GWh	Gigawatt hour
kCal	Kilocalorie
kg	Kilogramme
mcm	Million cubic meters
$MtCO_2e$	Million tonnes of carbon dioxide equivalent
MW	Megawatt
MWh	Megawatt hour
NO_x	Nitrogen oxide
SO_2	Sulphur dioxide
t	Tonne
tcm	Thousand cubic meters
tCO_2	Tonne of carbon dioxide
toe	Tonne of oil equivalent

Executive summary

Despite the political and economic difficulties that Ukraine has faced in recent years, its government has been able to articulate new and ambitious policy goals. The reform agenda has been largely focused on deregulation, decentralisation privatisation, strengthening the financial markets. Ukraine has also made important efforts to modernise and reform its energy sector and related markets. Energy efficiency and the development of renewable energy sources in Ukraine have become a matter of energy sovereignty and the country's wider security.

The purpose of this report is to identify areas for improvement associated with scaling up green finance in Ukraine. This is done by reviewing the experience of the State Export-Import Bank of Ukraine (Ukreximbank) with implementing environmental credit lines and using them to lend to energy efficiency and renewable energy sources. Ukreximbank has developed a successful sustainable energy-lending portfolio. This experience is used to offer recommendation to policy makers on what could be done to encourage more demand for, and a better use of, green lending in Ukraine.

The main findings, conclusions and recommendations emerging from this analysis are summarised in greater detail below.

Macro-economic and investment context

Since 2008, and specifically from the beginning of 2014 till the end of 2015, Ukraine has suffered from extreme economic and political instability. A range of sources have contributed to this situation, including the global recession, geo-political tensions with the Russian Federation, and falling commodity prices. This has resulted in the rapid depreciation of the hryvnia, and a severe economic contraction.

Macro-economic pressures have been reflected in the financial markets. Credit risks and the associated levels of non-performing loans (NPLs) have increased in recent years. Many domestic and international lenders have exited the market since 2010. Corporate lending remains subdued, banks are over-capitalised, and excessive liquidity continues to exert pressure on banks' balances.

These external factors have had a negative impact on investor confidence and reduced overall capital flows, including in green technologies. Foreign direct investment has been volatile. Instability has compounded investor concerns over governance, transparency and the rule of law, although these are now being addressed by the government.

Where institutions do seek to invest in sustainable energy, access to finance remains a challenge. The cost of capital remains high, tenors are short and collateral requirements often unrealistic. Many potential borrowers (municipalities, housing associations) cannot develop bankable projects due to the lack of guarantees or other structural and legal barriers, as well as insufficiently developed institutional capacity.

Sustainable energy context

Ukraine remains among the most energy-intensive economies in the world, with the highest energy intensity among all countries in the Energy Community of which Ukraine is a member. Ukraine has become highly dependent on energy imports, but the government has made a lot of efforts to decrease country's energy dependence. Inefficient use of energy reduces competitiveness in Ukrainian industry, while creating unmanageable costs for public budgets and households.

Much work has been done in recent years to improve the strategies and policies related to energy and environmental protection. Energy pricing is being reformed, and a new, more comprehensive Energy Strategy to 2035 was adopted in 2017. However, the legislative process remains slow and the development of sub-regulations incomplete.

On the energy supply side, Ukraine has been relatively successful in attracting investment into renewable energy. This was helped by the adoption of feed-in tariff structures and clear long-term targets. The efficiency of existing power and heat generation assets, however, and the performance of the transmission and distribution network are poor by global standards. The government is now discussing the possibility of introducing renewable energy auctions as a more cost-competitive approach to meeting its long term targets.

On the demand side, the government aims to reduce energy intensity by half in the next 20 years. However, the National Energy Efficiency Action Plan needs to be better financed and implemented. The Law on Energy Efficiency and the Law on Homeowners Association as well as some key regulations remain in draft form and need to be finalised.

Ukraine continues to engage with international climate policy processes, particularly around carbon markets and pricing. However, its commitments to reduce greenhouse gas (GHG) emissions in the long term are not ambitious by comparison with current levels, with a net increase envisaged over the period to 2035, and no comprehensive Greenhouse Gases Action Plan in place.

Market response

Ukraine presents one of the most compelling market opportunities for investment in energy efficiency. International finance institutions (IFIs) and climate financing facilities have mobilised more than EUR 600 million to support sustainable energy and energy efficiency lending in Ukraine through third party financial institutions since 2006, working through at least 10 local banks. From 2004 to 2014, Ukraine attracted approximately 40% of all new investment across the EU Eastern Partnership (EaP) region, equivalent to USD 3.3 billion.

Ukreximbank has been by far the largest and most successful of these financial institutions, drawing upon multiple credit lines from five different IFIs, including the European Bank for Reconstruction and Development, European Investment Bank, Global Climate Partnership Fund, International Bank for Reconstruction and Development and Nordic Investment Bank. Ukreximbank has disbursed over EUR 500 million in loans for energy efficiency and renewable energy financing, making it the largest intermediary for IFI-originated sustainable energy credit lines in the EaP region to date.

Ukreximbank staff members note that a number of barriers have been overcome during product scale-up. These include a lack of awareness among clients of technologies and benefits, weak capacity for identifying and appraising projects, high transaction costs of project preparation and monitoring, and unfavourable market and regulatory environment, including the cost of finance.

Key success factors in Ukreximbank's experience include the long-term commitment by senior management to pursuing market opportunities, the allocation of sufficient internal resources, the creation of a dedicated product team, investment in training and capacity across the branch network, and the ability to leverage the bank's existing customer base.

What distinguishes Ukreximbank from other participating banks in IFI-supported facilities is the fact that the Bank has dedicated considerable human and financial resources to building a successful product implementation unit, with more than 10 staff engaged in headquarters but also in each of its main branches. Although Ukreximbank benefitted initially from IFI technical support and training (primarily EBRD), it quickly brought this capacity in house, including financial assessment, technical appraisal, client training and environmental evaluation, and developed a range of tools to support these processes (e.g. savings, GHG emissions calculator). These efforts are supported by a corporate university which provides seminars and distance learning.

Policy maker recommendations

Policy makers should further develop the necessary primary and secondary regulations underpinning sustainable energy investment, particularly in relation to the Energy Efficiency Law and the Energy Strategy to 2035. This could be achieved by the transposition of relevant EU Directives (in the version for Energy Community Contracting Parties) and supported by the introduction of technical standards, and clear institutional arrangements. The government should focus on improving the legal and business environment for international private capital to step in the development of renewable energy sources and energy efficiency service companies (ESCOs) that could bring such technical expertise, know-how and capital to Ukraine (especially from the EU member states and the United States of America).

Tariff reform is key for encouraging change in investor behaviour. While progress has been made, greater harmonisation across different consumer groups is required. Separating energy pricing from welfare safety nets should be considered. Reform of the cost-plus model used in wholesale energy markets would encourage supply-side investment. Investment incentives currently provided through the energy tariff must be tied to real projects, rather than simply allocated as part of an accounting process.

A key barrier to green private finance remains the wider macro-economic situation and poor investment climate, characterised, among others, by high risks, strict regulations on currency control and capital outflow from Ukraine. The government should continue to strengthen governance and the rule of law and improve investor confidence.

Consideration should be given to promoting sustainability reporting and disclosure among private sector companies.

Chapter 1

The macro-economic context for green investments in Ukraine

This chapter briefly describes the macro-economic and political context for green investments in Ukraine, with a focus on the investment climate. The general performance of the economy underpins the green finance needs and trends in a country.

1.1. Political context

Ukraine has suffered from significant economic and political instability in recent years, with its public policy and institutions subject by powerful competing interests. Caught between the competing spheres of influence of the European Union and the Russian Federation, the country has undergone a difficult political transition in the last five years.

In 2013 and 2014 Ukraine experienced a dramatic change of the political regime which led to the ousting of the previous president and was followed by the Presidential, Parliamentary and local elections. Faster progress was halted by the annexation of Crimea by the Russian Federation and the conflict in the Donbas region. The latter appears to be evolving into a frozen conflict which is likely to require significant ongoing public funds that will reduce overall resources available to the Ukrainian government.

The subsequent Governments committed to an ambitious and wide-ranging reform which focused on significant fiscal consolidation, moving to a flexible exchange rate, reforming energy tariffs and social assistance, simplifying business regulations, stabilising and restructuring the banking sector, adopting a health reform package, and establishing anti-corruption agencies and asset disclosures for public officials, all the while contending with powerful vested interests that continue to oppose reforms.

In 2015, the International Monetary Fund (IMF) launched a support programme of USD 8.7 billion to support the Ukrainian economy.[1] In January 2016, the EU and Ukraine provisionally applied the Deep and Comprehensive Free Trade Arrangement (DCFTA).[2]

Ukraine faces both presidential and parliamentary elections in 2019. This is likely to divert political attention from the implementation of necessary reforms as 2018 proceeds.

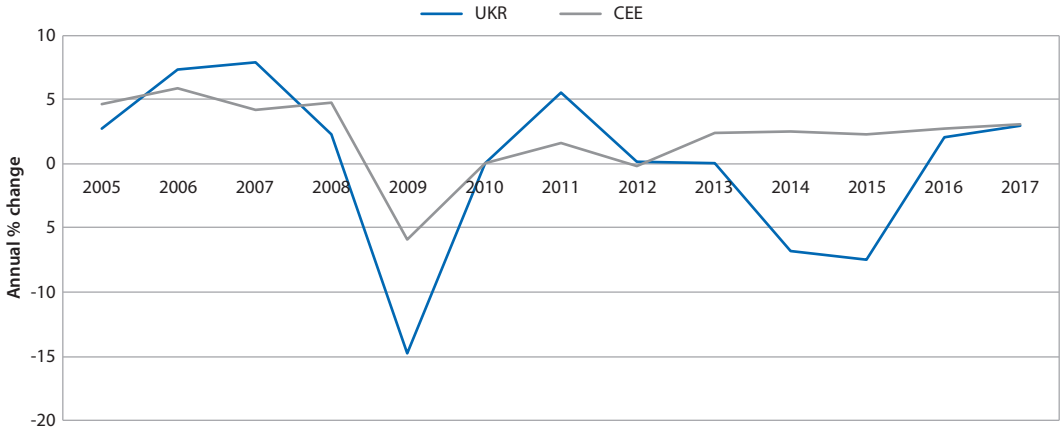
1.2. GDP growth

Prior to 2008, Ukraine experienced strong levels of economic growth. The global financial crisis hit Ukraine particularly hard in 2008-09, with a cumulative fall in gross domestic product (GDP) of 15%-16%, one of the deepest recessions of any country in the region. After the crisis, the economy did begin to recover (supported by rising commodity prices), but these gains were to some extent offset by the rising costs of fossil-fuel imports from the Russian Federation, upon which Ukraine depended for its energy needs.

By 2010, growth returned, increasing by 4.1% in 2010 and 5.2% in 2011. However, this growth was fuelled primarily by domestic demand, which led to serious imbalances in the economy. By 2012, growth rates, commodity prices and export demand began to slow, resulting in lower inflation and flat GDP in 2012-13. Domestic demand, which had driven the recovery, declined, and there was a fall-off in capital investment.

There was another deep recession (an overall contraction of16%) in 2014-15, driven by a mix of geo-political and economic factors. However, the economy began to recover in 2016 (2.3%) and GDP growth was relatively stable in 2017. Weaknesses in agriculture and mining were offset by growth in construction and retail. It should be noted that although GDP growth rates are positive, they are less than what might be expected of a country at Ukraine's stage of economic development, given the prevailing regional and global growth dynamics (see Figure 1.1).

Figure 1.1. **Real GDP growth rates 2005-17**



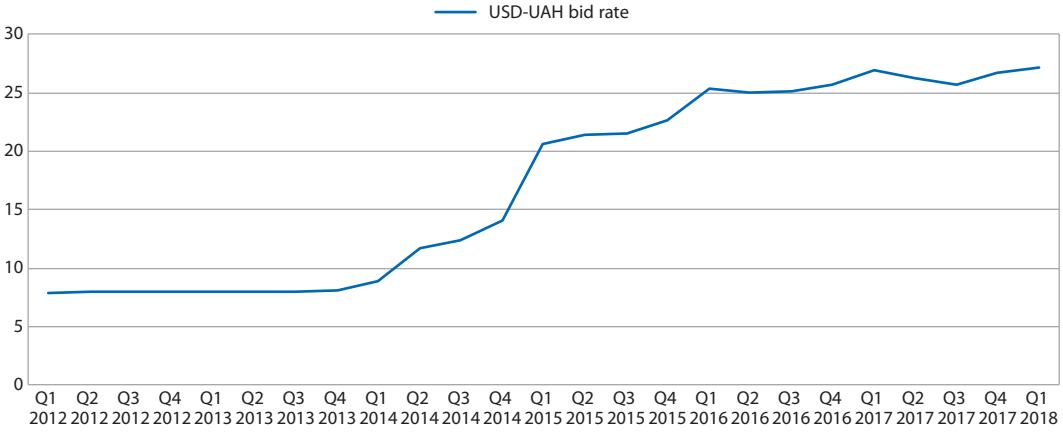
Source: World Bank, World development indicators database. https://data.worldbank.org/products/wdi (accessed on 15 April 2018).

1.3. Foreign exchange

Political and economic uncertainty has fed into foreign exchange markets. The Ukrainian hryvnia has undergone periods of significant volatility over the last decade. One of the consequences of the 2008-09 crisis was the decision by the National Bank of Ukraine (NBU) to peg the Ukrainian hryvnia to the US dollar. The aim was to improve confidence in the currency among investors, and to reduce the risk of rapid currency depreciation. Challenges included a current account deficit of over 6%, which was not matched by foreign direct investment inflows.

This stabilised the currency for a period between 2010-12, but resulted in its significant overvaluation as other economic indicators weakened. The current account deficit increased to over 9% of GDP, significantly exceeding foreign direct investment. By 2013, reserves started to shrink, and the budget deficit grew to 5% of GDP. The central bank

Figure 1.2. **UAH : USD exchange rate, January 2012-March 2018**



Source: National Bank of Ukraine. https://bank.gov.ua/control/en/publish/category?cat_id=7693083: (accessed on 15 April 2018).

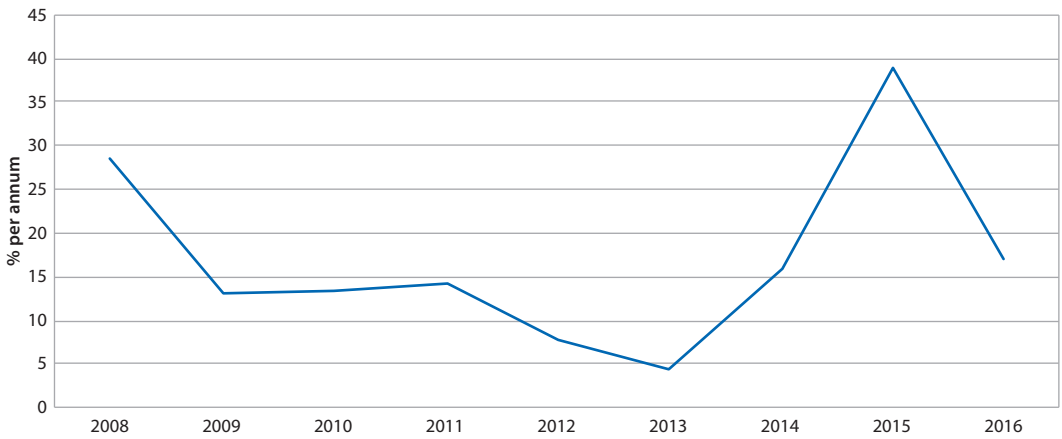
maintained the dollar peg through market intervention and tightening monetary policy, which led to a reduction in international reserves of USD 20 billion by the end of 2013.

Confronted with declining reserves and vanishing political stability, the central bank took the decision to remove the dollar peg, after which the hryvnia depreciated by 50% against the US dollar. The currency only began to stabilise in May 2014, after a sharp increase in interest rates and the agreement of IMF support, which in turn provided the opportunity for additional support from the European Union and the World Bank. In total, the assistance package was USD 27 billion, including sovereign external debt restructuring. Since early 2016, the currency has been more stable, but continues to weaken slowly, given the environment of geo-political and economic risks (see Figure 1.2).

1.4. Inflation and interest rates

The economy of Ukraine has experienced periods of high inflation, with periods where it has reached in excess of 20% per annum. Inflation fell during the period where the Ukrainian hryvnia was pegged to the dollar, but at the expense of using national foreign currency reserves to defend the peg. The revaluation of the currency was followed by a significant spike in inflation, to nearly 40%. More recently in 2017, inflation increased significantly above the 8% (+/-2%) central bank target, rising between 13%-14% by year end. Inflationary pressures are also being driven by higher public sector wages and pensions (see Figure 1.3).

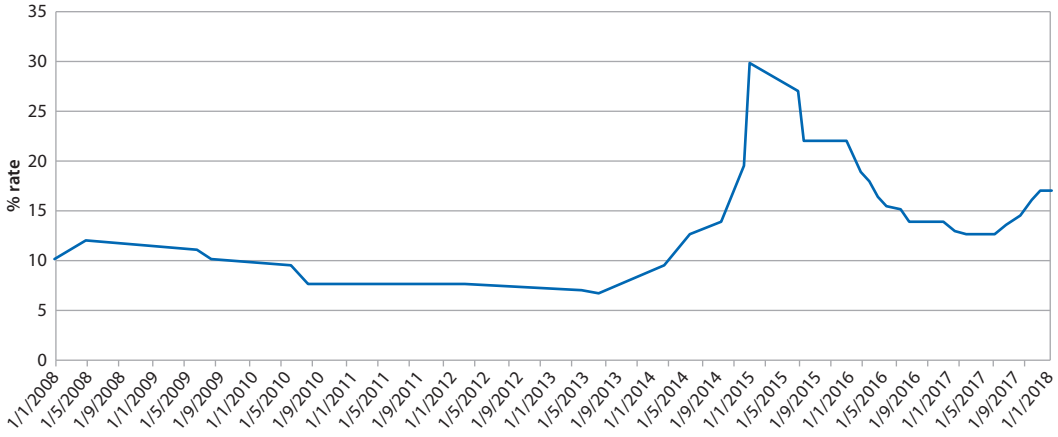
Figure 1.3. **Ukraine annual inflation, 2008-16, %**



Source: World Bank Development Indicators (2018). https://data.worldbank.org/products/wdi (accessed on 15 April 2018).

Interest rates have also been high in the same period, particularly during 2015-16. More recently, in 2017, inflationary pressures have seen the key policy rate increase from 12.5% in May 2017 to 17% in March 2018. This, in turn, has increased the cost of funds for local currency borrowing both for the government and for the private sector. High interest rates can in turn reduce the capacity of borrowers to invest in energy efficiency and renewable energy (see Figure 1.4).

Figure 1.4. **Ukraine key policy rate, 2008-18, % per annum**



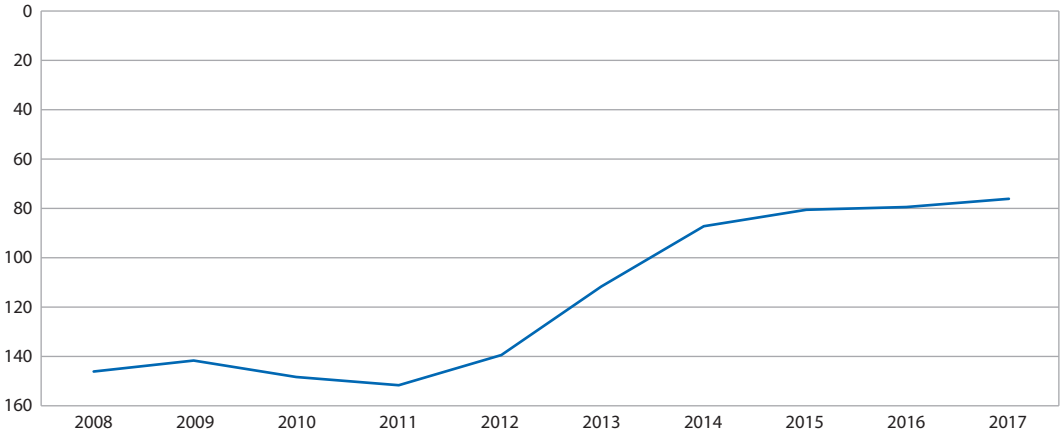
Source: National Bank of Ukraine (2018). https://bank.gov.ua/control/en/publish/article?art_id=67609&cat_id=12064024: (accessed on 15 April 2018).

1.5. Investment climate

The investment climate in Ukraine has been undergoing reform, and despite geopolitical tensions and wider economic issues, it has strengthened over time. Examples include the successful issuance of a USD 3 billion Eurobond and the upgrading of the country's sovereign rating in 2017.

Ukraine's ranking under the World Bank Doing Business survey has consistently (if slowly) improved over recent years. Since 2014, the government has been pursuing reforms, many associated with the ratification of the EU Association Agreement. These include public procurement, strengthening legal recourse and stronger anti-corruption measures. For example, the Anti-Corruption Strategy of Ukraine for 2014-17 was recently updated and adopted. Work is ongoing to improve the legal framework for public-private partnerships (PPP).

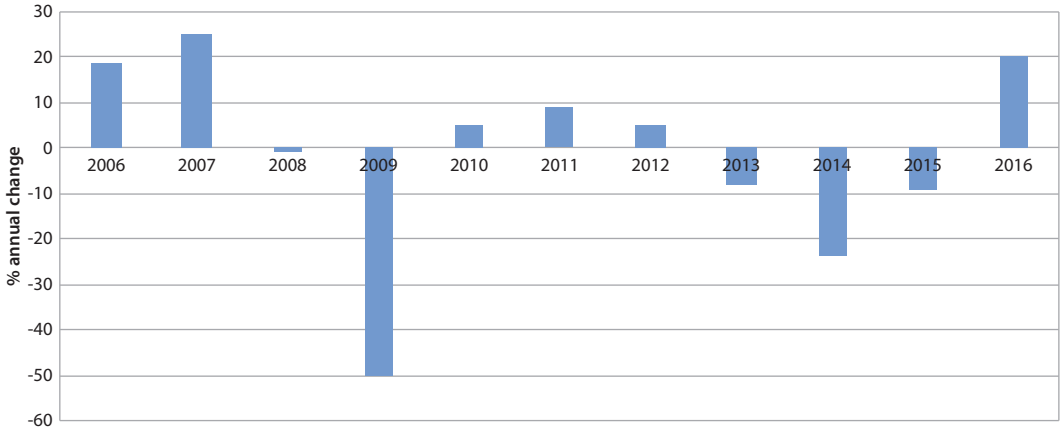
Figure 1.5. **Ukraine country ranking: Doing Business Report 2008-17**



Source: World Bank (2018). www.doingbusiness.org/Rankings.

Despite this improvement, investment in Ukraine has been volatile over the period, reflecting wider economic and political issues. Gross fixed capital investment fell significantly in 2008-09, and again between 2013-15 (see Figure 1.6).

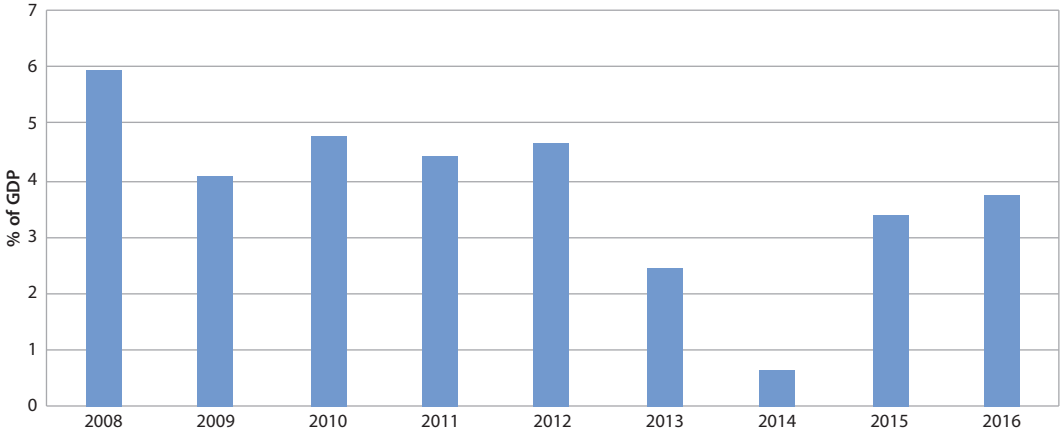
Figure 1.6. **Gross fixed capital formation, % annual change, 2006-16**



Source: World Bank development indicators database. https://data.worldbank.org/products/wdi (accessed on 15 April 2018).

Foreign direct investment (FDI) has also been volatile. There was a significant contraction between 2013-14. During this crisis, FDI fell by 45% in 2013 and a further 81% in 2014 in real terms. Whilst fixed capital investment rebounded in 2016-17, FDI remains subdued (2.1% of GDP as compared to an average of 5% before the crisis). This is partly a result of the delays in completing the IMF programme, and of uncertainty related to the 2019 elections. Cyprus remains the most significant source of funds, but this is likely to represent repatriation of funds previously taken out of the country by local or regional actors.

Figure 1.7. **Foreign direct investment net inflows as a share of GDP, 2008-16**



Source: World Bank development indicators database (2018). https://data.worldbank.org/products/wdi (accessed on 15 April 2018).

The lack of foreign investment is a key constraint on economic growth. It has also had an impact on the availability of finance for investment in sustainable development and clean energy.[3] Investment risk affects the sustainable energy sector disproportionately due to the additional risk premium associated with financing new technologies and markets (see Figure 1.7).

1.6. Forward outlook

The Ukrainian economy continues to recover on the back of GDP growth and rising consumer demand. GDP is expected to grow in both 2018 and 2019 and inflation is expected to remain stable (if above target). Despite the slow pace of reforms, measures to increase the attractiveness of the investment climate for foreign investment are likely, given the integration of Ukraine's exports into the EU trade market.

For the foreseeable future, Ukraine is likely to face significant financing needs and fiscal pressures, which will need to be filled by new borrowing and greater efficiency in revenue collection. To ensure its ability to raise funds at reasonable cost, it will be important for Ukraine to complete reforms called for under the Fourth Review of the IMF programme in the summer of 2018, well in advance of 2019 elections.

The levels of GDP growth will to some extent depend on investor confidence. Potential opportunities to increase investor confidence include reforms in land markets, financial markets, anti-corruption, judicial sector reform and privatisation. Weak rates of economic growth (<2%) have the potential to increase political and social instability, particularly given increasing inflationary pressures in the economy associated with increased public spending, wage levels and changes to utility tariffs.

Several issues remain. For example, significant restrictions on private investment are still in place in a number of sectors. International investor participation and capital are restricted in "strategic sectors" the definition of which remains poorly specified. As a result, international ownership remains very limited among Ukraine's largest companies (less than 25%) in contrast to the majority of companies in the other countries in Central and Eastern Europe. The state-owned monopolies remain powerful. Environmental reporting and disclosure is weak in Ukrainian companies and more could be done to promote sustainable consumption.[4]

There is a significant need to increase private capital investment in the energy sector. However, the process of privatisation remains slow. Legislative arrangements for public private partnerships remain complex and government capacity is relatively weak. The reform process is work in progress and how effective it can be remains to be seen. As a result, investment in the energy sector has not kept up with demand, which in turn is reducing Ukraine's energy security and competitiveness.

Moving forward, any improvement in the investment climate will have a positive influence on environmental investment, particularly in the energy sector. Reforms will need to include significant strengthening of investment policy and investor protection to attract FDI and multi-national entities, and energising public-private dialogue in Ukraine on legislative improvement and simplification of regulations. To encourage private sector investment, Ukraine may consider promoting environmental and climate change disclosure requirements for private sector companies in line with EU and OECD standards.

Notes

1. The delay in the adoption of the law on privatisation and on the establishment of an anti-corruption court, as well as the government's reluctance to raise the price of gas led to the suspension of Ukraine's co-operation with the IMF in April 2016, together with the halt of external financing from both the European Union and the World Bank. The programme is due to finish in April 2019.
2. This agreement means both sides will mutually open their markets for goods and services based on predictable and enforceable trade rules. This is part of the broader Association Agreement whose political and co-operation provisions have been provisionally applied since November 2014. Autonomous Trade Measures for Ukraine entered into force in October 2017.
3. See OECD (2015).
4. See OECD (2011) for best practice recommendations on responsible business conduct.

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Chapter 2

Ukraine's banking sector

This chapter reviews the role and capacity of the banking sector in Ukraine to support the economic development of the country. It also describes the main trends in the banking sector particularly since the last financial crisis. The chapter briefly discusses the major reform measures that the government of Ukraine could consider to create an effective and competitive banking system.

2.1. Trends in the banking sector

The challenges in the political and macro-economic environment have fed through into the banking and wider financial sector. For the past decade, Ukrainian banks have operated under conditions of political and economic instability. This has in turn negatively affected their ability to finance green growth and sustainable energy projects on the scale required to meet national targets.

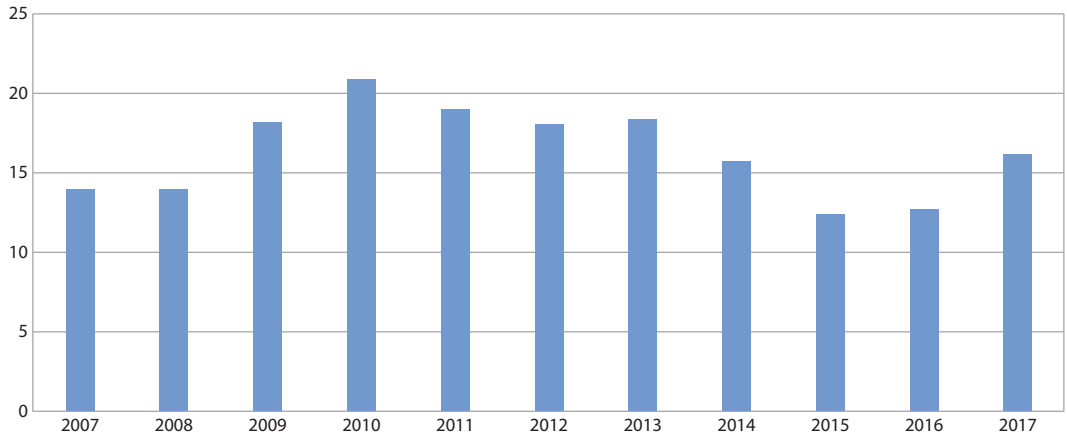
2.1.1. Sector performance

The sector grew rapidly prior to 2008 based on strong credit expansion. However, lending contracted rapidly in 2009-10, with banks coming under significant financial stress. High levels of non-performing loans (NPLs) began to emerge. Despite a period of relative stability between 2010-13 (reflecting increased liquidity), the sector faced another serious contraction in 2014.

Early 2014 brought devaluation, higher inflation and a recession, all of which had a negative impact on the banking sector. Both local and foreign exchange deposits began to shrink, reflecting the loss of confidence and the collapse in real interest rates, compounded by the conflict in Eastern Ukraine. This was despite the imposition of foreign exchange controls by the Central Bank. Banks received liquidity support, but credit quality deteriorated rapidly during 2014, with NPLs increasing from 19% to 24% over the course of the year.[1] Currency depreciation also increased the overall share of foreign exchange loans, many of which were unhedged (such as mortgage loans).

Currency volatility and the lack of non-hedged foreign currency lending left many borrowers exposed to significant losses. Banks became more cautious in their lending as a result. Many began to invest in government securities as an alternative to lending. Banks' capital adequacy ratios[2] also began to shrink, creating the need for recapitalisation (see Figure 2.1).

Figure 2.1. **Regulatory capital adequacy of Ukrainian banks, %, 2008-17**

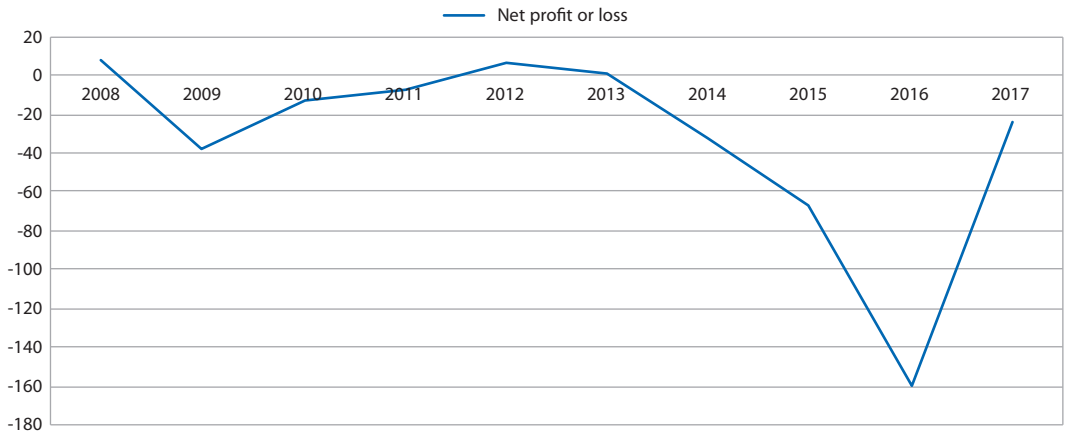


Note: All data used in this figure are end of year data.

Source: National Bank of Ukraine (2018). https://bank.gov.ua/control/en/publish/article?showHidden=1&art_id=27893044&cat_id=8782106&ctime=1456402130048#1: (accessed on 15 April 2018).

Profitability across the sector declined significantly from 2014 onwards.[3] In 2017, the share of non-performing loans in the two largest state-owned banks (Oschadbank and Ukreximbank) was 64% and 65%, respectively (Kahkonen, 2017).

Figure 2.2. **Net profitability of Ukrainian banks, 2008-17, UAH billion**



Source: National Bank of Ukraine (2018). https://bank.gov.ua/control/en/publish/article?art_id=34705283&cat_id=34798612: (accessed on 15 April 2018).

However, by 2017 the market began to stabilise and recover. The monetary easing policies of the National Bank of Ukraine (NBU) in 2017 initiated a recovery in lending activity in the banking sector. Net assets grew by 6.4% during the year. The foreign currency loan portfolio shrank significantly due to restructured and written off loans, but this was offset by an increase in local currency lending. There was significant growth in corporate lending, driven by state monopolies, trading companies and the agricultural sector. Retail lending also grew rapidly, representing 42% of net local currency lending growth. The quality of the loan portfolios of all the banks improved, with a reduction in the NPL rate to 54.5% in the second half of 2017. NPLs, excluding state and Russian-owned banks, were 28.4%.

The funding position of banks also improved, with an increase in deposits (both retail and corporate), and a switch from foreign currency to local currency deposits in the corporate sector. Interest rates on retail lending decreased by 3.2 percentage points to 14.3% in 2017. Rates on corporate and retail local currency loans and rates on foreign currency deposits remained low.

As a result, operating profit before provisioning increased by 8% to UAH 40.7 billion. While there were continuing significant provisions for bad debt, these losses were mostly generated by three-four banks (PrivatBank and two banks with Russian capital). The number of loss-making banks decreased from 33 in 2016 to 18 in 2017, while the number of banks that posted an operating loss before provisioning was down, from 23 to 14. NPLs decreased for all banks since June 2017 with the exception of Privatbank.

The outlook for the banking sector remains mixed. Consumer lending is expected to grow rapidly, with some growth in other markets (e.g. mortgages). Local currency lending to the corporate sector is also expected to increase as the real economy improves. However, it is not expected that banking profitability will improve significantly in the short term.

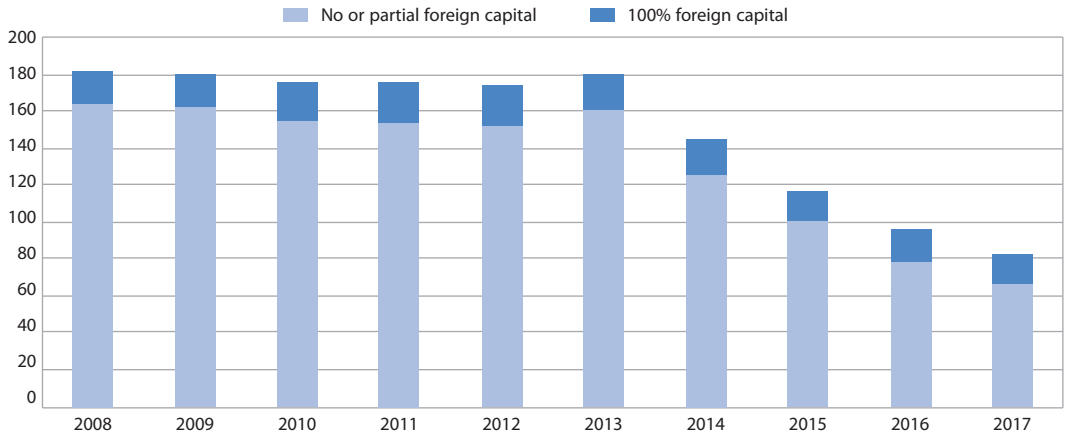
2.2. Market structure and concentration

The Ukraine banking sector has typically differed from other markets in the region due to the larger number of banking institutions, the resulting higher levels of competition and lower levels of concentration. However, market consolidation has increased since the end of 2013. While significant numbers of smaller banks (many acting as the financing arm of corporations or other economic interests) still exist, many have closed as licensing requirements have become stricter.

The total number of banks decreased from 180 at the end of 2013 to 82 at the end of 2017. Several foreign-owned institutions also left the market in the period, due to challenges in their domestic European markets and an increase in capital requirements. In 2017, 14 additional banks left the market, of which 4 became financial companies and 1 was merged with another bank. Western banks now make up 19% of the market, with the share of Russian and private banks visibly decreasing.

Over this period, there have been several large-scale recapitalisation and nationalisation events. In 2016, Ukreximbank and Oschadbank (both state-owned banks) were recapitalised, and Privatbank, Ukraine's largest privately-owned commercial bank was nationalised by the government of Ukraine, following a capital shortfall of c. USD 5.65 billion and evidence that more than 90% of corporate loans had been made to related parties. Official sources estimate that between 2014 and 2017 the recapitalisation of banks required an injection of up to 14% of GDP to meet capital targets.

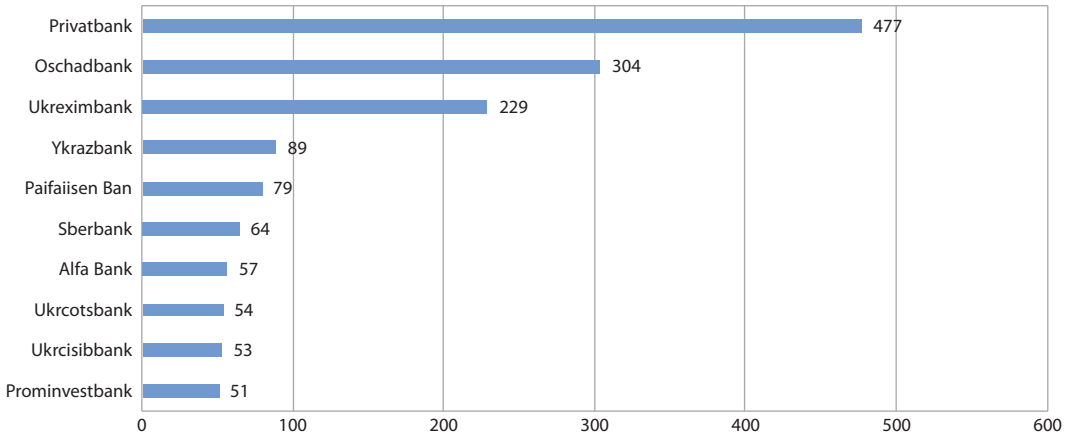
Figure 2.3. **Number of banks operating in the Ukrainian market, 2008-17**



Source: National Bank of Ukraine (2018). https://bank.gov.ua/doccatalog/document?id=64939167: (accessed on 15 April 2018).

This process has been mirrored by concentration of market power and assets. At the end of 2017, the top 20 banks accounted for 90.7% of total net assets, with the top 5 accounting for more than 60%. There has also been an increasing role for state-owned banks due to a series of nationalisations and mergers. By the end of 2017, their share of net assets had risen to 54.9% from only 18% in 2012, and more than 60% of retail deposits. In geographical terms, Kyiv dominates the market, accounting for more than half of deposits and credit volumes.

Figure 2.4. **Top 10 Ukrainian banks by assets, UAH billion as of 1 May 2018**



Source: National Bank of Ukraine. https://bank.gov.ua/control/uk/publish/article?art_id=34661442&cat_id=34798593: (accessed on 15 May 2018).

The National Bank of Ukraine (NBU) is responsible for supervision and regulation of the banking sector and for maintaining financial stability. The NBU monetary policy has direct impact on the availability of affordable bank lending, including for green investments. Some of the issues that limit liquidity and lead to high interest rates on commercial bank loans flow from NBU operations. For example:

- The NBU does not pay interest on the required reserves that commercial banks have to hold at the NBU. This leads to higher costs of commercial borrowing.
- The NBU is legally required to contribute to the state budget and these contributions could be significant (UAH 50.55 billion in 2017). These payments considerably limit NBU capacity to counter inflation through regulating liquidity in the banking sector. This in turn can put upwards pressure on inflation, which in turn leads to increases in the discount rate, higher commercial lending rates and lower economic activity.
- As part of its monetary policy, NBU conducts open market operations mostly on the basis of repurchasing agreements. However, the lack of an active repo market for trading government and IFI-issued bonds limits opportunities to inject more liquidity in the banking sector.

2.3. Ongoing reform

The reform of the banking sector continues and remains a core component of reducing the country's potential exposure to future economic and financial crisis. The reduction in the number of banks, and the reduction in the level of related-party lending have the potential to improve the allocation of finance towards higher quality projects and borrowers and to enhance access to finance by smaller and medium-sized enterprises.

However, several key risks to the banking sector remain which constrain banks' ability to provide affordable lending. These include:

- continuing political and macro-economic instability
- weak governance and the rule of law
- lack of an active repo market for trading government or IFI-issued bonds

- potential for deterioration in credit risk and increasing numbers of NPLs
- ongoing exchange rate risk
- over-reliance on international creditor support
- continuing high levels of unhedged foreign currency borrowing
- liquidity risk associated with weak depositor confidence
- overall low levels of profitability
- potential exposure to international global commodity prices.

Opportunities to address some of these issues and strengthen the banking sector include:

- State ownership in the banking sector has become too pronounced (50%+) and should be reduced where possible with a process of reprivatisation after structural issues and NPLs have been adequately resolved.
- The level of NPLs is very high (approximately 57% across the Ukrainian banking sector as a whole), and mechanisms are needed to address this problem. The NBU is already dealing with this challenge, but successful resolution will require further effort.
- Reforms could be undertaken to improve the rights of creditors who are currently prevented from expanding their lending portfolio.
- Banks will need to address the quality of their asset base, while meeting emerging regulatory requirements (including capital adequacy), and improving liquidity and risk policies.
- The sector needs to implement International Financial Reporting Standard (IFRS) 9 and support the implementation of Basel recommendations and EU directives.
- The NBU new supervision model will be implemented, creating more robust monitoring and stress testing of Ukrainian banks (e.g. for liquidity coverage ratio, regulatory capital).
- The legal acts that regulate NBU operations could be revised to reduce adverse impacts on commercial banks' standing and improve availability of affordable bank lending.
- It is likely that the sector will continue to consolidate, with further closures or mergers of banks.

The political and macro-economic challenges faced by Ukraine, as reflected in the banking sector have created significant headwinds for scaling up green investment, and for Ukraine's transition to a less energy-intensive economy. Banks have been unable to capitalise on the market opportunity and the volume of lending has been constrained. Cost, tenor, collateral and foreign currency exposure all serve to create barriers for potential borrowers. As a result, only one Ukrainian financing institution – the Export-Import Bank of Ukraine – of more than ten Ukrainian banks supported by International Finance Institutions to date has gone on to build a sustained product position in the green lending market.

More recently, AB "Ukrgasbank" (a bank owned 90% by the Ministry of Finance) has been seeking to position itself as the first environmental bank in Ukraine. Ukrgasbank has set a target for itself to finance 30% of the clean energy market in the country and is looking into the option of issuing green bonds. AB "Ukrgasbank" is working closely with

the International Finance Corporation to develop in-house technical capacity to finance green projects. Having new actors entering the green finance market in Ukraine and the competition in the sector could possibly lead to better conditions for borrowers and to increased demand for green lending.

Notes

1. Note that NPLs are defined according to the National Bank of Ukraine definition. Based on the IMF definition, NPLs were higher at 24%-32%.
2. Capital requirement (also known as regulatory capital or capital adequacy) is the amount of capital a bank or other financial institution has to hold as required by its financial regulator. This is usually expressed as a capital adequacy ratio of equity that must be held as a percentage of risk-weighted assets.
3. In 2015, the IMF estimated Ukraine recapitalisation requirements as being between 9-10% of GDP, an increase of 200% from an assessment a year earlier due to deteriorating political and economic environment.

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Chapter 3

Sustainable energy profile of Ukraine

This chapter reviews the challenges in Ukraine confronting the shift to sustainable energy, and the emerging policy context for green investment. It discusses both supply-side policy measures related to renewable energy and power sector efficiency as well as demand-side policies on energy efficiency. The chapter also analyses climate change policies as a driver of energy sector improvements. The chapter finishes with a discussion of the most recent policy developments with a particular focus on the new Energy Strategy to 2035.

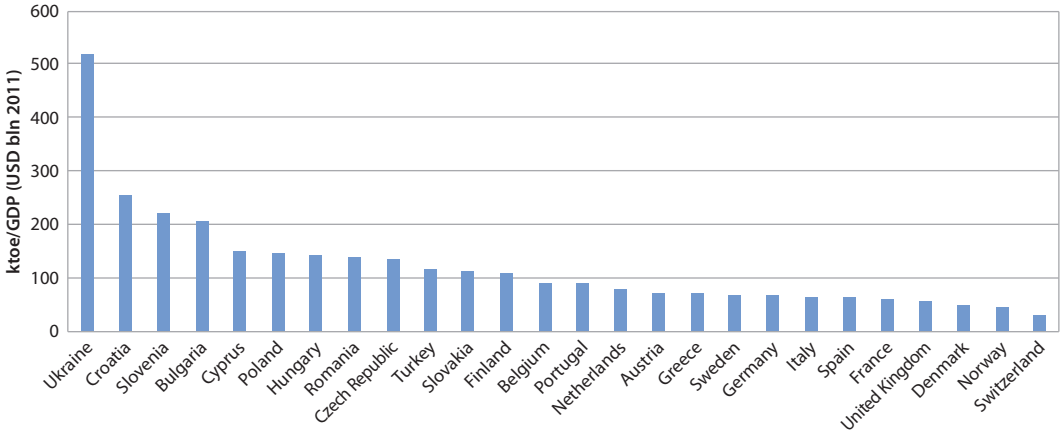
3.1. Sustainable energy challenges

The difficulties of the Ukrainian banking system and wider economy are compounded by the challenge of the transition to a cleaner and more efficient energy system. This transition is urgent, due to the historically high levels of energy import dependency (particularly on the Russian Federation), and the inefficient domestic consumption of fossil fuels, which in turn reduces international competitiveness. Ukraine's energy sector represents approximately 12.6% of GDP, but the lack of efficiency in the energy sector reduces economic growth and is a barrier to economic development.

Ukraine has also made the decision to increase its commitments to sustainable energy as a component of the EU Association Agreement, in line with its participation in the Energy Community. In April 2016, Ukraine signed the Paris Agreement on Climate Change, and in February 2018, Ukraine became a member of the International Renewable Energy Agency (IRENA). As a result, it urgently needs to increase supply-side efficiency within the power sector, increase the share of renewables within the energy mix, and improve end-use energy efficiency.

Ukraine is among the most energy-intensive economies in the world, at approximately three times the OECD and EU average (see Figure 3.1). Its energy intensity is also significantly higher than other countries in the Energy Community. This in part reflects its large industrial base, but is also due to the prevalence of outdated and inefficient production technologies as well as the existence of shadow economy (about 40% of GDP in 2016, as reported by the Ministry of Social Policy). Historically, low energy prices, especially for natural gas, have allowed for the development of inefficient technologies and production processes. For example, approximately 41% of all Ukrainian steel is produced using open-hearth technology that is four times less efficient than the best available technology. Other sectors with high energy efficiency potential include chemicals and fertilisers, agriculture and food production. Ukraine's National Energy Strategy recognises the competitive disadvantage inherent in inefficient energy use. In addition, the existence of "grey" economy which is not accounted for in national statistics is also a barrier to the implementation of energy efficiency measures. It is usually small and medium-sized enterprises which form part of the informal sector. As a result, there is no information on actual energy consumption levels and energy intensity of such enterprises which makes the task of increasing energy efficiency harder to achieve.

Figure 3.1. **Energy intensity of Ukraine vs. EU member states**



Source: https://www.eia.gov/workingpapers/pdf/international_energy_Intensity.pdf: (accessed on 15 April 2018).

Inefficient use of energy exists equally across other sectors. Supply-side losses in the heat distribution system exacerbate demand-side inefficiency. The poor condition of heat supply infrastructure leads to losses of up to 45% in heat systems and 40% in water supply systems. Technical losses can be nearly double those found in Western European best practice. For example, existing boilers are on average about 20% less efficient than the best available technologies. Building stock is also of poor quality with low thermal capacities and significant losses of up to 30%. Overall, building-stock energy efficiency is estimated to be only one half to a third of Western Europe's.

The majority of Ukraine's thermal and nuclear power generation units are old and require significant upgrade or replacement. Grid infrastructure and management are poor, resulting in high inefficiencies and large technical transmission and distribution losses. Greenhouse gas (GHG) emissions and pollution associated with power generation are high.

The Ukrainian government has historically subsidised the costs of energy to end consumers. Despite recent increases in energy prices, they remain below cost-reflective levels, with high levels of public subsidy (particularly for residential tariffs), which lowers the incentive to invest in energy efficiency. The differentiated gas price structure has resulted in a level of cross-subsidy, placing a heavy burden on the Ukrainian state budget. While end-user tariffs were significantly increased in the past couple of years, targeted subsidies to support poor households have risen as well. At the same time, the capacity of energy companies to build their capital reserves and to invest in upgrading the efficiency of generation and distribution assets remains low. During an energy crisis, the government typically intervenes to take control over the power sector, which in turn reduces longer-term investor confidence.

Despite reforms of the tariff system, energy generators continue to receive significant subsidies and support under the regulated rate mechanism. Until very recently, the distribution tariffs were set according to the cost-plus principle, allowing owners a profit margin of 3% on top of their costs. This encourages them to maximise revenues rather than to invest or reduce losses. The "cost-plus" rate-setting method reduces the incentive for utilities to invest in efficiency improvement. This in turn disrupts the market balance and reduces national competitiveness.

To mitigate some of these challenges, the government has introduced a "regulatory asset-based tariff" which has yet to be technically detailed and enforced. This will set tariffs at a share of the asset base. In addition, in July 2017, the government began to privatise eight state-owned energy distribution companies (*oblenergos*) to increase competitiveness in the electricity sector.

3.2. Sustainable energy strategy

Over the last 10 years, Ukraine has done much to try to improve its regulatory and policy environment to encourage energy efficiency and develop renewable energy markets. Given recent economic and political developments, the Ukrainian government has stepped up its efforts to intensify its indigenous energy production and improve energy efficiency policies.

Ukraine's current energy strategy is laid out in the document "Energy Strategy of Ukraine to 2035 – Safety, Energy Efficiency, Competitiveness' (GoU, 2017)[1] . This document, adopted in 2017, sets out strategic objectives for the various energy sub-sectors and defines large-scale reforms. It is set to become the co-ordinating framework for sustainable energy investment. It envisages the harmonisation of Ukrainian legislation with

a number of EU Directives (e.g. on energy end-use efficiency and energy services, energy performance of buildings, and energy labelling). It aims to develop a system that can meet energy demand, increase energy security, reduce the impact of the energy sector on the environment, reduce the cost of energy production, and integrate Ukraine's energy system into the European energy system. In particular, it seeks to:

- meet the population's demand both in normal and in emergency conditions
- ensure technically reliable and safe operation of the power supply system
- provide for economic efficiency in Ukraine's power supply systems and energy sector
- increase efficient energy use by the population and the national economy
- reduce the environmental and climate impact of the energy sector
- enable the state to form and carry out policies to protect the national interest.

The strategy has a core focus on mobilising investments, reducing subsidies, increasing competitive markets and creating a more supportive investment climate for energy infrastructure investment.

The strategy also presents several key performance indicators that the government has adopted as formal 2035 targets. These include:

- reducing Ukraine's energy intensity by 50%
- reducing CO_2 emissions in heat and electricity production by a further 20% per unit
- increasing the share of renewable energy to 25% of the overall balance (2015: 5%)
- increasing the share of renewable energy to 25% (2015: 4%)
- increasing the share of hydropower to 7% (2014: 4%)
- generating 50% of electricity from nuclear power (2015: 54%)
- generating 32% of electricity from thermal power plants (2015: 41%)
- reducing GHG emissions vs. the 1990 baseline of 50%
- reducing GDP energy intensity (tonne of oil equivalent per USD 1 000) to 0.13 (2015: 0.28)
- reducing losses in electricity transmission to <7.5% (2015: >12%).

However, a step-by-step implementation plan has not yet been developed. A significant proportion of the strategy is oriented towards renewable energy development, efficiency improvement in heat supply, power generation and transmission, and end-use energy efficiency across a range of sectors.

The priorities are set out in Box 3.1.

Box 3.1. **Strategic priorities of the Energy Strategy of Ukraine to 2035**

For *renewable energy*, the strategic objectives are:

- expansion and integration of renewable energy
- development of grid balancing systems to absorb a higher percentage of renewable energy
- investment in large scale hydro with small hydro power as additional capacity
- development of biomass and its use in thermal generation
- promotion of combined heat and power (CHP)
- upgrade and efficiency improvements of power generation assets
- positive investment climate for investment in the energy sector (generation and grid assets).

For *heating*, the strategic objectives are:

- reduction of heat losses in supply networks and buildings
- increasing the share of renewable heating (e.g. biomass, bio-methane, co-generation)
- helping municipalities increase investment in heating systems through regulation.

For *energy efficiency*, the strategic objectives are:

- transition to market pricing to encourage consumer investment
- improving metering and monitoring systems
- updating apartment ownership structures to create the legal basis for investment
- promoting energy saving technologies in buildings (heating, ventilation and air conditioning and lighting)
- restructuring the wholesale tariff structure to encourage power-sector efficiency
- promotion of energy service companies (ESCO) markets
- unbundling heat supply markets (production, transportation and supply)
- public policy and energy standards to encourage industrial energy efficiency
- legislation to require energy audits, buildings certification, equipment labelling
- introducing ESCO markets for municipal buildings and public sector facilities
- fiscal incentives for energy efficient and low-carbon transport
- introducing carbon tax to incentivise emissions reductions and recycle funds for energy efficiency.

Source: CoM (2017), Energy Strategy of Ukraine to 2035.

The Energy Strategy to 2035 also aimed to address the institutional co-ordination issues that have hampered effective management and implementation of previous laws. Energy efficiency and renewable energy policy will be the responsibility of several different institutions. The Energy Strategy to 2035 sets out a new institutional framework, summarised in Table 3.1.

Table 3.1. **Ukraine institutional responsibilities for Energy Strategy to 2035**

Cabinet of Ministers	• Approving the programmes and plans of executive authorities. Drafting laws and regulations • Approving social and economic development programmes (at national, sector and local levels). Providing state assistance to entities (soft loans and taxes, certification and licensing, etc.) • Approving annually the projected balance (for five years) of production and consumption of fuel and energy resources in Ukraine • Implementing requirements for the preparation by entities of emergency response plans, including under conditions of crisis in Ukraine's energy sector to ensure energy security • Setting and periodically revising performance indicators of energy security, taking into consideration current threats and risks in energy security
Ministry of Regional Development, Construction, Housing and Communal Services	• Making and implementing state heat supply policy to the country's communities (public heat supply, heat supply to social and budget-supported entities and individual household consumers) • Endorsing regional programmes for upgrading public thermal energy facilities • Endorsing development plans (schemes) of local heat-supply systems • Endorsing investment plans of public thermal energy utilities • Developing strategic initiatives for energy efficiency in buildings and facilities
Ministry of Energy and Coal Industry	• Taking responsibility for implementation of the Energy Strategy • Ensuring the development of a general action plan for Strategy implementation. The plan details objectives and actions for the implementation of the "Roadmap" at Strategy implementation stages • Ensuring the preparation and publication of the National Report on the implementation of the state energy policy. The report analyses in detail the achievement of Strategy objectives, performance measures taken (causes of failure), as well as mechanisms and instruments to support the implementation of measures for the next stage of the Strategy • Ensuring annual monitoring of compliance with the Strategy in the activities of the energy sector entities and publishing a relevant report • Submitting an annual report on Strategy implementation to the Cabinet of Ministers and the National Security and Defence Council of Ukraine
National Commission for State Energy and Public Utilities Regulation	• Taking into consideration the Strategy provisions and objectives in developing regulations for governing activities in energy and related services markets • Ensuring the restriction of the monopoly influence of energy market participants and granting of free access to networks of new energy market participants • Balancing the interests of the state, natural monopolies and consumers of goods (services) produced (provided) by natural monopolies • Reflecting the Strategy provisions and objectives in the requirements for carrying out licensed activities in energy and related services markets • Local executive authorities, local governments ensure the implementation of the Strategy within their competence, in particular, by: - Designing and approving development plans (schemes) of local energy systems and regional programmes for upgrading public thermal energy utilities - Coordinating investment plans of public energy utilities - Realising the potential of energy saving and efficiency, and local use of renewable energy
Ministry of Ecology and Natural Resources	• Taking into consideration the Strategy provisions in Ukraine's foreign policy while conducting negotiations, concluding international treaties and ensuring the participation of Ukraine in international initiatives on energy and climate change • Taking responsibility for the implementation of international treaties in the area of environmental protection, specifically, regarding environmental impact assessment in accordance with the Aarhus Convention
Ministry for Economic Development and Trade	• Reflecting the Strategy in draft government target programmes of social and economic development • Preparing government programmes for providing support to entities and implementing public and private partnerships programmes • Co-ordinating foreign policy, setting priorities of economic co-operation during the dialogue with trading partners

Table 3.1. **Ukraine institutional responsibilities for Energy Strategy to 2035** *(continued)*

Ministry of Foreign Affairs	• Conducting negotiations and concluding international treaties, ensuring the participation of Ukraine in international initiatives on energy and climate change • Presenting Ukraine's position to international organisations, formulating strategic initiatives in the field of energy and environment at the international level • Advocating the interests of the energy sector of Ukraine in implementing projects associated with the development of cross-border energy infrastructure, and regional energy markets • Conducting initial consultations and negotiations on how to diversify the sources of energy supply for the country and how to export them to foreign markets

Source: CoM (2017), Energy Strategy of Ukraine to 2035.

3.3. Sustainable energy policy and regulatory frameworks

A wide range of policies and regulations help to support the development of sustainable energy markets. Many of these have already been adopted and under implementation, while others remain in draft. In 2017, legislative efforts in this regard were accelarated. The key strategy and policy documents are set out in Table 3.2 and then discussed from a supply-side, demand-management and climate-change perspective.

Table 3.2. **Ukraine's energy and climate change strategies, legislation and sub-regulations**

Title	Year (revised)	Policy status	Sector target
Law on homeowners association	NA	Draft	Energy efficiency, buildings
Law on energy efficiency	NA	Draft	Energy efficiency, cross sector
Technical regulations for energy labelling of household ovens and range hoods	NA	Draft	Energy efficiency, household goods
Technical resolution on energy labelling of industrial fans, water pumps, transformers, electric motors, lamps circulators	NA	Draft	Energy efficiency, industrial goods
Technical regulation concerning requirements for gasoline, diesel, ship and boiler fuels in accordance with EU Directive 2016/802/EU (on reduction in the sulphur content of certain liquid fuels) and Directive 98/70/EC (on quality of petrol and diesel fuels)	NA	Draft	Environmental, transport
Law on commercial metering of heat and water supply No. 2119-VIII	2017	In force	Energy efficiency, industry
Law on energy efficiency in buildings No. 2118-VIII	2017	In force	Energy efficiency, buildings
Law on the establishment of the Energy Efficiency Fund	2017	In force	Energy efficiency, residential buildings
Law on electricity market No. 2019	2017	In force	Electricity
Resolution of the Cabinet of Ministers on the Action Plan for energy management system implementation in public institutions	2017	In force	Energy efficiency, public buildings
Law on heat supply, to stimulate the production of heat energy generated from alternative sources of energy (introduced a simplified tariff-setting for producers of heat generated from e.g. bioenergy)	2017	In force	Heat, renewable energy
Resolutions of the Cabinet of Ministers of Ukraine on Technical regulations on energy labelling of air conditioners, televisions, vacuum cleaners, household tumble driers	2017	In force	Energy efficiency, household goods
Law on the natural gas market No. 329	2016	In force	Gas
Law on ratification of Paris Climate Change Agreement	2016	In force	Cross sector

Table 3.2. **Ukraine's energy and climate change strategies, legislation and sub-regulations** *(continued)*

Title	Year (revised)	Policy status	Sector target
Law on introduction of new investment opportunities guaranteeing the rights and legitimate interests of business entities for large-scale energy modernisation No. 327-VIII	2015	In force	Power generation
Decree of the President of Ukraine on Ukraine 2020 Sustainable Development Strategy	2015	In force	Cross sector
Resolutions of the Cabinet of Ministers of Ukraine on Technical regulations on energy labelling of electric lamps and luminaries, household dishwashers	2015		Energy efficiency, household goods
National Energy Efficiency Action Plan until 2020	2015	In force	Energy efficiency, cross sector
National Renewable Energy Action Plan until 2020	2014	In force	Renewable energy
Law on the ratification of the Association Agreement between the European Union and Ukraine	2014	In force	Cross sector
Resolutions of the Cabinet of Ministers of Ukraine on Technical regulations on energy labelling of energy related products, on domestic electric refrigerators, on household washing machines	2013	In force	Energy efficiency, household goods
Corporate income tax exemptions in Ukraine available for renewable energy sector	2011	In force	Renewable energy
Law on the basic principles (strategy) of the State Environmental Policy of Ukraine through 2020	2010	In force	Cross cutting
Green tariff (Feed-in tariff)	2009 (2015)	In force	Solar PV, wind, hydro biomass for power
Law on promotion of biological fuels production and use	2009	In force	Biofuels for transport
Value added tax (VAT) and customs duties exemptions	2008	In force	Renewable energy
Programme to develop biodiesel production	2005 (2006)	In force	Biofuels for transport
Law on combined heat and power (co-generation) and waste energy potential	2005	In force	Combined heat and power (CHP) energy efficiency, multi-sector
Law on alternative energy sources	2003	In force	Renewable energy
Law on alternative fuels	2000 (2012)	In force	Biofuels for transport
Law on the ratification of the United Nations Framework Convention on Climate Change	1996	In force	Cross sector

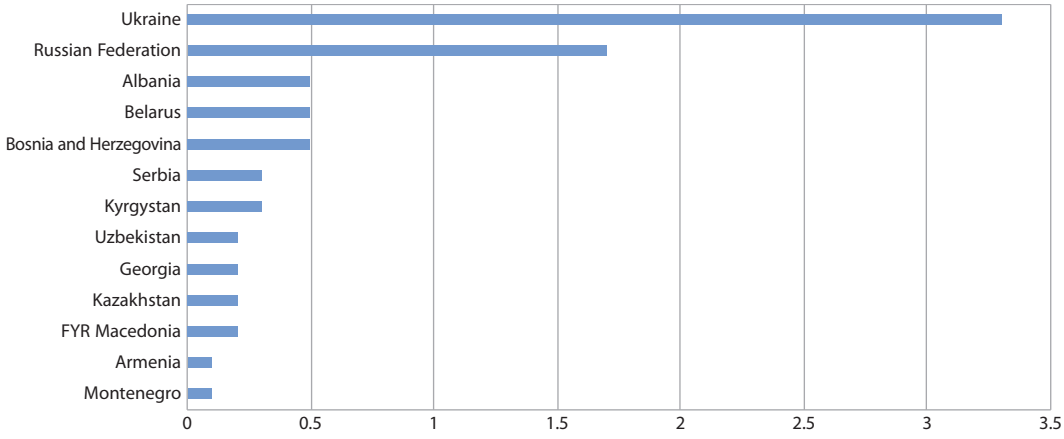
Source: Authors' compilation.

Many developments in energy policy are the result of increased energy co-operation with the European Commission. This co-operation began in 2005 through a Memorandum of Understanding (MoU) that established a joint strategy for the integration of Ukrainian and EU energy markets. In 2011, Ukraine became a member of the Energy Community with the EU. This was a driver in the adoption of renewable energy targets under the 2030 and revised 2035 Strategy, the transposition of EU legislation (e.g. the EU Renewable Energy Directive) and the adoption of the National Renewable Energy Action Plan to 2020 (2014). In June 2014, the government of Ukraine signed the Association Agreement with the European Union and has accelerated its work in transposing the Energy Community Treaty provisions into the national legislation to revitalise the electricity and natural gas sectors, encourage competition, and strengthen the role of the National Commission for the State Regulation of Energy Markets.

3.3.1. Supply-side policy (renewables and power sector efficiency)

Natural gas represents a significant portion of power generation (approximately 41% of the total). Renewable energy, mostly hydropower, currently accounts for about 4% of primary energy. Renewables have attracted significant interest but only accounted for 1.1% of Ukraine's energy production in 2016, with another 4.5% from large-scale hydroelectric plants. However, Ukraine has been more successful than many countries in the region in attracting investment into non-large hydro renewables over recent years, albeit from a low base. From 2004 to 2014, Ukraine attracted approximately 40% of all new investment across the region, equivalent to USD 3.3 billion. This was approximately twice the level of investment in the Russian Federation and equal to the combined investment of all the remaining countries combined (see Figure 3.2).

Figure 3.2. **Renewable energy investment, 2004-14, USD billion**



Note: Data in this figure exclude large hydro.

Source: UNECE (2015).

According to the 2014 National Renewable Energy Action Plan of Ukraine to 2020 (the National Plan), the share of renewable energy in gross final energy consumption in Ukraine was expected to reach 11% by 2020, in line with Ukraine's undertaking as part of the European Energy Community. However, this 11% target does not factor in the Russian annexation of Crimea and the conflict in Donbas. Ukraine's investment requirements to implement the National Renewable Energy Plan are estimated at about EUR 12 billion (MENAFN, 2018).

Ukraine is taking a wide range of measures to stimulate the development of renewable energy sources (RES). Changes in the electricity sector adopted in mid-2015 unlocked the market for new RES power plants. 257 MW of new capacity were commissioned (and received feed-in tariffs) in 2017 and continued growth of new RES capacity is expected in 2018 and beyond to 2020, especially in terms of large-scale wind and solar projects. In addition, IRENA estimates that about 80% of Ukraine's renewable energy potential is in biomass where most biomass operations could be undertaken by agricultural companies.

To stimulate the operation and development of renewable energy sources in Ukraine, a special feed-in tariff (FIT) known as the Green Tariff was introduced in 2009. A commission establishes the level of green tariffs. The level of tariff is differentiated for

each type of renewable resource: wind, solar, biomass, geothermal and small hydroelectric (i.e. generating capacity not exceeding 10 Megawatt (MW).[2] The payment schedule for green tariffs runs until 2030 and is to be reviewed monthly with a guaranteed "minimum floor" set in euros. The feed-in tariffs are paid both to new and existing renewable energy plants. The tariff system was revised in July 2015, reducing the level of tariff for solar (which had been among the highest in the world), establishing a fairer system of quarterly euro-indexation and restructuring the local component requirements (moving to a bonus, rather than a mandatory requirement which had been acting as a barrier to investment).[3] The revised tariffs are listed in Table 3.3.

Table 3.3. **Revised green tariffs in Ukraine, July 2015, EUR/MWh**

Technology	2015	2016	2017-19	2020-24	2025-29
Biomass	123.86	123.86	123.86	111.48	99.09
Biogas	123.86	123.86	123.86	111.48	99.09
Geothermal	150.25	150.25	150.25	135.17	120.09
Small hydro (0.2-1 MW)	139.48	139.48	139.48	125.48	111.48
Solar (ground based)	169.64	159.94	150.25	135.17	120.09
Solar (roof based)	180.41	172.33	163.71	147.56	130.86
Wind (>2 MW)	101.78	101.78	101.78	90.47	79.19

Source: DLF (2016).

Initially, the state intended to reduce the FIT valid until 2030, in three main stages (in 2014, 2019 and 2024). In practice, the tariff reduction has been occurring gradually and constantly. Since the tariffs are tied to foreign currency, that is, to the EUR, the adjustment of the rates also occurs several times a year, as a result of the unstable currency exchange rate. Some of the tariffs were also amended at the end of December 2016 for households and business producers under *Amendments to the Law of Ukraine "On Electricity"*. The attractive premium to the feed-in tariff for locally produced equipment is also encouraging equipment producers in Ukraine to produce solar panels, turbines and other equipment.

A new tariff for heat from renewables was recently approved. These changes will mostly open up opportunities for producers of heat from biomass: by 2020 biomass is expected to replace up to 7 bcm of natural gas on an annual basis. As a next step, Ukraine plans to create a competitive heat market, which will eliminate the gas monopoly in its heating sector (Dentons, 2017).

At the same time, the government is also discussing the possibility of withdrawing the green tariff in 2019 or 2020 and switching to competitive tenders (auctions). Currently, most projects with commissioning after 2020 are suspended and a draft law on auctions is being prepared. Auctions are seen as a price-discovery mechanism and a way to lower the cost of electricity. Experience from other countries that have switched to competitive tenders (e.g. Chile, France, Lithuania, United Kingdom, United States of America) shows that prices set through auctions have indeed significantly decreased. The World Bank and the Energy Community Secretariat are working with the government to analyse the option of introducing tendering. However, frequent regulatory changes increase unpredictability and raise concerns among investors. Many believe that well-designed auction schemes – with clear tender participation rules, regional "cap" for certain RES and well-detailed power purchasing agreements – can be a solution from 2030 onward but not a replacement

for the feed-in tariff before it expires. Any policy and regulatory measure needs to be properly assessed in terms of its economic impacts as poorly evaluated actions may discourage international capital from participation. In addition, the fact that the electricity market reform is not yet finished creates further constraints to the development of a competitive RES market in Ukraine.

A number of tax incentives have also been implemented, including reduced land tax rates for renewable enterprises, reduced tax on corporate profits (for renewable energy generation, biofuel and green vehicle production), and reductions of customs duties for import of equipment. However, the recent restructuring means that only those for combined heat and power (CHP) and biofuels production remain. Energy price increases are also encouraging supply-side investment, and higher district heating prices are making it more attractive to invest in buildings efficiency.

3.3.2. Demand-side policy (energy efficiency)

Several attempts have been made to promote energy efficiency policy in recent years. In 1996, the Government of Ukraine (GoU) developed an Energy Efficiency Programme but did not establish an action plan for its delivery and enforcement. The 2006 Energy Strategy set targets for improvements in energy intensity. In 2010, the National Agency of Ukraine for the Effective Use of Energy Resources (NAER) developed an Energy Efficiency Programme aiming to improve energy intensity by 20% by 2015. The State Agency on Energy Efficiency and Energy Saving (SAEE), which replaced NAER in 2011, assumed the responsibility of supporting both energy efficiency and renewable energy. The SAEE sits underneath the Ministry of Regional Development, Construction, Housing and Communal Services.

After 2015, legislative efforts to support the introduction of clean energy and energy efficiency accelerated significantly. In 2017, a number of crucial laws were adopted by Parliament. These include, among others:

- The law on the electricity market
- The law on energy efficiency in buildings
- The law on stimulation of heat energy produced by renewable energy sources
- The law on commercial metering of heat and water supply
- The law on the Establishment of the Energy Efficiency Fund
- The law on introduction of new investment opportunities, guaranteeing the rights and legitimate interests of business entities for large-scale energy modernisation.

In addition, several technical regulations concerning energy labelling for appliances were designed to ensure compliance with EU directives in this area. Regulations on how to calculate energy performance of buildings have already been adopted.

Demand-side energy efficiency targets are set out in the Energy Strategy to 2035, which seeks to reduce energy intensity of GDP by 50% by 2035, down to 0.1 3 toe/USD GDP PPP. About 40% of these reductions would derive from structural changes (in a shift from industry to services), and the remainder from technical improvements in industry and buildings. The Strategy estimated that such a shift requires investment of approximately USD 20 billion. However, much work remains to be done to overcome barriers such as access to finance.

More broadly, significant work has been undertaken on the development of Energy Service Company models (ESCOs) and energy performance contracting (EnPC) over recent years. The Ministry of Regional Development, Construction, Housing and Communal Services has been exploring the potential for improved efficiency in public and residential buildings. This work is supported by the European Bank for Reconstruction and Development (EBRD) and is focused on improving the regulatory framework for ESCOs in Ukraine, so that the public sector can procure energy efficient works and services following the principles of the EnPC approach. An interagency working group is engaged in this. These reforms have been supported by developing a number of financial mechanisms as set out below.

The Ministry of Regional Development with support from Germany and the European Union has been working on energy efficiency reforms focusing on the residential building sector. This reform is multi-faceted, but turning inefficient subsidies into energy efficiency investments forms the core objective. The savings from reduced energy-related social subsidies made possible by investment in energy efficiency are used to create a revenue stream, consolidated through the newly established Energy Efficiency Fund. The Law on the Fund was adopted in June 2017. EU and Germany have pledged to assist the Fund's activities to kick-off initial subsidy savings, while the International Finance Corporation has agreed to set-up a Multi-Donor Technical Fund to manage donor funds. Operationalising the Fund will require further legislative and organisational efforts, including the preparation of a Statute for the Fund and setting up the institution (OECD, 2017).

While the Energy Efficiency Fund is still in the development phase, the government has put the "Warm Loans" Programme into effect. Since it was launched in 2014, the Programme has provided UAH 1.8 billion in support to individuals, households and multi-apartment buildings for the purchase of energy efficient materials and equipment (e.g. insulation materials, solid fuel boilers, whether gas-free or non-electric. The Programme, administered by the State Agency on Energy Efficiency and Energy Saving, has worked with Ukrainian state-owned banks and disbursed its resources in the form of interest rates subsidies on loans extended by the banks to borrowers who have taken credit for energy efficiency investments.

The State Agency on Energy Efficiency and Energy Saving is also working on promoting renovations and energy efficiency in public buildings. The Law on introduction of new investment opportunities of September 2015 guarantees the rights and legitimate interests of business entities for large-scale energy modernisation. This opens the way for investors and energy service companies to enter this market and guarantees investors' remuneration. Since it was adopted, almost 400 tenders have been announced and 125 energy performance contracts signed totalling more than EUR 3 million (information provided by SAEE).

Despite the fact that the ESCO market has been rapidly growing, there are a number of challenges some of which can be related to finance. ESCOs lack fixed or real estate assets traditionally accepted by banks as collateral, whereas ESCO typical assets are the future payment obligations of its clients. For various reasons, there could be delays with payments from local budgets which result in energy service arrears leading to increased risk and hence higher costs of project finance mechanisms. In addition, ESCO projects in emerging markets based on shared savings contracts tend to be small in individual value, while financial institutions look for projects of a certain volume to justify transaction costs. All this makes it difficult for ESCOs to access bank lending.

The government could help facilitate bank financing in a number of ways, including by putting in place a low threshold loan programme for small scale project finance and the development of preconditions for factoring of public sector ESCO contracts. Financial

leasing schemes could be explored in particular for demountable and reusable equipment such as individual heat substations or small scale renewable energy-based boilers.

Development of such financial mechanisms will require close co-operation with the National Bank of Ukraine (NBU) to amend the NBU regulations, in particular assigning liquidity co-efficients and corresponding reserve requirements, which in many cases (e.g. for municipal liabilities under ESCO contracts) have yet to be defined.

Collectively, such legislative developments show that Ukraine recognises that its economic development and energy security must be delivered in part through improved energy efficiency investment and regulation. Given the complexity and cross-sectoral character of energy efficiency, progress will require a broad range of national and sub-national actors to co-operate on energy efficiency reform and target those sectors where the benefits are the greatest (industry, energy efficient products, energy management systems, energy standards and benchmarks).

Some of these standards could include among others:

- ISO 50000 series standards for energy management (institutionalised in Ukraine with support by UNIDO/GEF UKR IEE Project)
- developing energy efficiency benchmarking schemes and giving industries a tool to assess their energy consumption level in relation to their industrial sub-sector and/or product, and thus competitiveness. In order to build trust and meaningful dialogue with industries introducing a Voluntary Agreements Scheme could be considered
- introducing and facilitating the use of International performance measurement and verification protocol (IPMVP). IPMVP defines standard terms and suggests best practice for quantifying the results of energy and resource efficiency investments. IPMVP is a tool which can be used to assess energy saving or CO_2 reductions in a cost-effective way and could be applied in commercial lending as well. A major driving force behind IPMVP introduction was the need for a common protocol to verify savings claimed by Energy Service Companies implementing energy conservation measures.

The government should also examine the possibility of making finance for energy efficiency more attractive, including the use of loan guarantee funds to help reduce borrower collateral requirements demanded by commercial banks, reduce the risk perception of lenders, and increase the volume of energy efficiency finance in the market.

3.3.3. Climate change policy

Ukraine ratified the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol in 1997 and 2004, respectively and committed to a binding target of 14% below 1990 reference levels. The country went on to make public commitments at the Copenhagen climate summit in 2009 to reduce its greenhouse gas (GHG) emissions from 1990 reference levels by 20% by 2020, and 50% by 2050. In 2012, Ukraine's GHG emissions were only 42% of their 1990 levels, primarily due to the reduction in industrial output after the collapse of the Soviet Union. Recent events, including the financial crisis of 2008-09 and geopolitical tensions with the Russian Federation, have also served further to reduce industrial output and associated GHG emissions.

In October 2015, Ukraine published its Intended Nationally Determined Contribution (INDC) as part of the UNFCCC Paris Conference of the Parties (COP) process. The

INDC indicated a target of 60% of 1990 levels by 2030 (i.e. a 50% increase over current GHG emission levels) reflecting the Ukrainian government's plan for economic recovery and development. The government acknowledged that this target was ambitious since it was still well below existing targets adopted under the Kyoto Protocol regime. However, external observers have criticised Ukraine's GHG reduction commitments adopted under the UNFCCC process.[4] While the country will as a result meet its current commitments, much room remains for significant improvement of the economy's emissions intensity.[5] Ukraine has indicated that its INDC will be "revised after the restoration of its territorial integrity and state sovereignty as well as after the approval of post-2020 socio-economic development strategies with account of investment mobilisation". As a follow up to the Paris Climate Change Agreement, the government adopted the Concept of Implementation of State Policy Regarding Climate Change up to 2030.

There is currently no national strategy or long-term action plan on GHG reductions. However, there has been a strong focus under the National Action Plan for Implementation of the Kyoto Protocol on the creation of a GHG inventory and supporting the development of carbon market mechanisms – namely Joint Implementation (JI) projects and the development of an Emissions Trading Schemes (ETS). In April 2017, the Ministry of Ecology and Natural Resources of Ukraine presented a roadmap for the establishment of an ETS in the country. A related draft law on Monitoring Reporting and Verification (MRV) was published in early 2018.

Ukraine was the most successful of the Eastern European economies in accessing finance through the Kyoto flexible mechanisms. As of October 2015, 276 JI projects had been registered in Ukraine, with more than 500 million Emission Reduction Units (ERUs) issued.[6] Ukraine was also the fourth largest Assigned Amount Unit (AAU)[7] seller by volume, with 47 million AAUs contracted between 2008 and 2012. The Ukrainian Green Investment Scheme (GIS) also began in 2010. Initial attempts to create a national ETS stalled in 2010, but efforts continue to develop carbon pricing and to develop an MRV system. Ukraine participates in the Partnership for Market Readiness (PMR) of the World Bank, and work remains ongoing in line with the EU-Ukraine Association Agreement. In December 2015, Ukraine announced its intention to participate in an international coalition of 18 countries, led by New Zealand, to develop international carbon markets.

3.4. Forward outlook

It is clear that significant work is being done to put the necessary regulatory building blocks into place for sustainable energy markets to develop. However, some pieces of legislation remain in draft form (e.g. Law on Energy Efficiency) or lack the necessary technical sub-regulations and implementing arrangements to make them effective. Recommendations for policy makers are discussed further in the final chapter of this report. Most importantly, however, it is now time for the government of Ukraine to move from policy and legislation making to actual implementation and enforcement of its good strategies, policies and regulations.

Notes

1. Adopted by Cabinet of Ministers of Ukraine on 18 August 2017 (No. 605-p).
2. Note that feed-in tariffs are not available for enterprises.
3. Note that local content requirements did not apply to household level or micro-generation facilities
4. See Climate Action Tracker https://climateactiontracker.org/countries/ukraine/.
5. Note that Ukraine may be impacted by the Doha amendment which limits the second Kyoto commitment period to the average historic emissions of 2008-10. This implies a target 300 $MtCO_2e$ lower than current targets.
6. See UNDP DYU CDM JI Database: www.cdmpipeline.org. ERUs are the emission units issued under Joint Implementation projects.
7. AAU represents the excess emissions quotas available for governments to sell if they meet their Kyoto targets.

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Chapter 4

Case study on energy efficiency finance: Ukreximbank

This chapter reviews the sustainable energy-lending operations of the Export-Import Bank of Ukraine (Ukreximbank) and analyses its energy efficiency portfolio. The chapter examines Ukreximbank's experience, in order to assess the barriers to developing a successful sustainable energy-lending portfolio, and to identify key success factors from an institutional perspective.

4.1. Context

This section of the report provides a review of the sustainable energy lending operations of the State Export-Import Bank of Ukraine (Ukreximbank). Since 2007, at least 10 local financial institutions have offered sustainable energy lending products in the Ukrainian market. All of these banks were supported by International Finance Institutions (IFI) credit lines or other international climate financing facilities.[1] The financial institutions and their source of funds are set out in Table 4.1.

Table 4.1. **Overview of Ukrainian banks receiving Sustainable Energy IFI credit lines, 2007-14**

	EBRD	IFC	EIB	IBRD	KfW	NEFCO/ Nordic Investment Bank	Green for Growth Fund	Global Climate Partnership Fund
Ukreximbank	X		X	X		X		X
MGB Megabank	X						X	
Raiffeisen Bank Aval	X							
Credit Europe		X						
Oschadbank			X					
Prominvestbank			X					
Forumbank			X					
Unicredit			X					
Procredit		X			X			
Bank Lviv						X		

Source: OECD (2014).

Of these local banks, Ukreximbank was chosen for the case study because it has the following characteristics:

- experience of working with multiple IFIs on energy efficiency (International Bank for Reconstruction and Development (IBRD), European Bank for Reconstruction and Development (EBRD), Global Climate Partnership Fund (GCPF), European Investment Bank (EIB)
- largest volume of IFI-related energy efficiency lending of any bank in the EU Eastern Partnership (EaP) region
- development of a best practice institutional structure to design and deliver energy efficiency (EE) products
- mixture of lending operations across multiple sectors (corporate, small and medium-sized enterprises [SMEs], municipal, energy service companies [ESCOs]).

Ukreximbank is a 100% state-owned bank, acting as the sole financial agent of the government of Ukraine with respect to foreign loans from IFIs borrowed or guaranteed by Ukraine. The bank plays a key role in providing finance for SMEs and the industrial sector, alongside its role as an export-import trade finance institution. It operates across Ukraine, with 24 main regional branches (which co-ordinate its corporate lending activities) and a further 41 sub-branches. Currently, the bank has approximately 41 000 corporate customers and 792 000 individual customers. It has played a key role in engaging with international financial institutions to develop best-in-class trade finance, SME lending and energy efficiency programmes.

Table 4.2. **Ukreximbank ranking in market share**

Indicator	Market share (%) (as of 1 March 2018)	Rank in Ukraine's banking sector
Core capital	5.0	4
Statutory capital	7.8	3
Liabilities	13.0	3
Customer funds	8.6	3
Total assets	12.0	3
Corporate loans (gross)	14.3	2
Loan book (gross)	12.1	2

Source: Provided by Ukreximbank (2018).

Despite the financial crisis, Ukreximbank continues to maintain its financial performance. In 2015, Ukreximbank successfully re-profiled its international debt of USD 1.475 billion with a significant extension of maturities.

4.2. Ukreximbank energy efficiency and renewable energy portfolio

Since 2007, Ukreximbank has engaged with a number of IFIs to develop sustainable energy lending products and to act as a financial intermediary for energy efficiency credit lines. These credit lines have brought in a total of EUR 500 million. The credit lines have targeted several sectors, including loans for large corporates, heavy industry, SMEs, municipalities, and small-scale renewable energy. Some, such as the EIB credit line, have been blended with other finance (e.g. SME) but have in great part been issued for investments in energy efficiency. The key IFI-support credit lines are shown in Table 4.3.

Table 4.3. **Overview of Ukreximbank Energy Efficiency Credit Lines**

IFI	Date of issue	Facility	Value	Description
IBRD	2011	Energy efficiency project	USD 200 million	30-year facility stipulates medium and long term financing of energy efficiency projects
EBRD	2007, 2008	Energy efficiency project	USD 50+50 million	Financing of mid- and long-term energy efficiency projects to reduce energy intensity
EBRD	2012	Energy efficiency for SMEs	USD 50 million	Providing investments in industrial energy efficiency and renewable energy for SME's
GCPF	2012	Energy efficiency facility	USD 30 million	Financing of long-term energy efficiency and sustainable energy SME projects
European Investment Bank (EIB)	2013	SME and Energy efficiency/ Environment loan	EUR 100 million	Financing SMEs investment projects as well as energy efficiency and environmental projects
Nordic Investment Bank (NIB)	2008	Environmental loan	USD 50 million	Financing of environmental projects in the field of energy efficiency/emission reduction

Source: Provided by Ukreximbank.

Ukreximbank has been by far the most active and successful bank in the EU Eastern Partnership (EaP) region in raising and disbursing energy efficiency loans. In September 2015, the bank joined the Global Alliance of Energy Efficiency Financing Institutions under the auspices of the EBRD and the United Nations Environment Programme Finance Initiative. This alliance brings together financing institutions committed to increasing their investment in renewable energy and energy efficiency.

Box 4.1. **Case Study: Ukreximbank energy efficiency finance for Ivano-Frankivsk Cement**

JSC Ivano-Frankivskcement, registered back in 1999, is a leading Ukrainian cement producer and a major budget-forming enterprise in the Ivano-Frankivsk region, with a production capacity of 2.4 million tonnes of cement per year (and 3.4 million tonnes per year after investment completion). Company products are used in the western regions of the country for infrastructure developments, utilities, and residential construction, as well as for road construction (including special types of cement only produced by "dry" facilities in Ukraine).

Since 2006, with its strategic modernisation programme the company has been making the transition from outdated "wet" methods to the energy- and resource-efficient "dry" method of production. Its investment was supported by local financial intermediaries, major IFIs operating in the region (IBRD, EBRD, and EIB); the plant also successfully implemented a joint implementation project under the mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol.

JSC Ivano-Frankivsk Cement has successfully carried out two consecutive stages of "wet-to-dry" transition and is currently implementing the third stage (which was expected to launch in the first half of 2018). The modernisation allowed Ivano-Frankivsk Cement to increase its cement production capacity from 0.5 to 2.4 million tonnes per year (3.4 million tonnes per year after completion of the third stage), as well as to enhance efficiency of its energy consumption. Estimated energy benefits gained from the implementation of the investment programme (at full capacity) include over 580 000 toe per year of coal (replaced with 470 000 toe per year of coal sludge), 20 million cubic meters per year of natural gas, and 120 000 toe per year of peat. The estimated environmental effect exceeds 1 million tCO_2e of greenhouse gas (GHG) emission reduction.

Estimated project benefits: The plant's production capacity increased from 0.5 to 3.4 million tonnes per year; specific energy consumption to produce clinker reduced from 1 600 to 760 kcal per kg (over 50%); for 300 000 toe per year of incremental savings. Social benefits include a 50% increase in the company's budget payments, an increase in jobs of over 10%, and a 30% plus increase in the share of environmentally-friendly "dry" cement production in the local market.

Source: World Bank (2017), UNFCCC Secretariat (2013).

To provide insight into the key success factors underpinning Ukreximbank's success, the report examines two of the IFI-financed credit facilities, provided by the World Bank (IBRD) and the EBRD.

4.2.1. IBRD Energy efficiency project

The IBRD Energy Efficiency Project (EEP) was initiated in November 2011 with a total of USD 200 million. Although Ukreximbank operates as a commercial bank, Ukreximbank's capital is fully funded by the government and the loan was backed by a sovereign guarantee. The loan was eligible for multiple sectors, including industrial energy efficiency, municipal enterprises, and reducing energy losses in the residential sector. The maturity of the loan was 30 years, enabling Ukreximbank to provide medium and long-term financing where necessary, with an appropriate grace period.

The project planned for funds to be provided both directly to end borrowers, but also through other local financial institutions (FIs). Ukreximbank was to assist partnering banks to establish similar credit lines. Ukreximbank would be responsible for selecting these partnering banks according to criteria defined jointly with the World Bank. The facility allows individual loans of up to USD 30 million with a repayment period of up to 10 years. The following types of projects were envisaged:

- modernisation of outdated and inefficient equipment and facilities
- introduction of equipment and processes with high energy efficiency in new facilities that exceed current best practice
- use of exhaust gases, waste heat and excess pressure; improving systems, which involves taking a set of measures aimed at increasing energy efficiency
- reduction of energy losses in municipal sector enterprises
- preparation of studies on energy efficiency and technical assistance
- reduction of energy loss in buildings
- implementation of any other sub-projects that demonstrate high energy efficiency.

Final borrowers of IBRD funds must have met the following criteria:

- debt service ratio of at least 1.3 (at the final stage of the project this ratio was changed to 1.0)
- compliance with World Bank environmental and procurement standards
- availability of satisfactory financial structure, organisation, management, personnel, financial and other resources needed for the effective exercise of their activities, including the implementation of sub-projects on energy efficiency.

In addition, investment projects to be financed by the IBRD facility must also have met the following eligibility criteria:

- technical feasibility and economic viability of the project
- focus on improving energy efficiency of end users
- real internal rate of return of at least 10% (the evaluation carried out exclusively considering reducing energy consumption, in the case of transfer to another fuel it was calculated based on the net decrease in consumption of the relevant resources)
- compliance with national environmental legislation and IBRD requirements and in accordance with IBRD principles and rules of procurement of goods, works and services
- not belonging to the list of excluded activities.

Disbursement was slower than projected because of the conflict in the east and the annexation of Crimea, the crisis in the banking system, the sharp national currency devaluation and economic recession. Hence, only 45% of the amount of the loan had been disbursed by September 2015, although two banks were participating as partners, and energy savings were ahead of projections. However, thanks to the timely reaction of Ukreximbank's team and the World Bank's supervision, it was possible to overcome the fallout from the financial crisis. After some restructuring of the project, the demand for energy efficiency funding increased. The EEP was completed on 31 March 2017, reaching full disbursement and achieving or exceeding most of its targets.

4.2.2. EBRD Energy Efficiency Project/SME Loan

In April 2007, the Bank and the EBRD signed a loan agreement, the Ukraine Energy Efficiency Programme (UKEEP), for USD 50 million to finance investment projects of private Ukrainian companies to reduce energy intensity and introduce modern technologies to improve their competitive position. The following types of sub-projects were eligible for financing within the Programme:

- industrial energy efficiency projects that help reduce energy intensity, including consumption of natural gas, electricity, fuel, etc.
- renewable energy projects (e.g. using hydropower, wind power, solar energy, biomass and geothermal energy, etc.).

After successful implementation of the Programme, in December 2008 the EBRD extended the loan facility to Ukreximbank by an additional USD 50 million, designated for sustainable energy sub-projects of private Ukrainian companies.

The EBRD increased the funding in 2012 by an additional USD 50 million with a more specific focus on small and medium-sized businesses to implement sustainable energy investment projects (industrial energy efficiency projects and renewable energy). Funding was available to private Ukrainian companies that meet the credit procedures of Ukreximbank and the following eligibility criteria:

- resident of Ukraine
- private enterprise
- annual turnover of no more than EUR 50 million currency (including group operations)
- balance sheet of no more than equivalent to EUR 43 million (including group operations)
- no more than 249 employees
- not included in the list of persons/organisations ineligible for EBRD lending.

Investment projects under the facility are required to meet the following criteria:

- Internal Rate of Return (IRR) exceeding 10%. For energy efficiency projects IRR is calculated solely on the basis of the financial value of the potential energy savings
- procurement under sub-projects must be made, based on generally accepted commercial practices in Ukraine and the applicable principles and rules of procurement of goods and services financed by EBRD
- compliance with current standards in health, safety and environmental protection.

The main parameters of sub-loans are as follows:

- sub-loan amount: up to USD 3 million
- terms of loans: up to 5 years
- grace period for repayment of principal: up to 18 months
- sub-loans cannot be used for activities identified in the list of social and environmental exemptions.

The initial two tranches (2007, 2008) for a total of USD 100 million and the third tranche (2012) have been successfully disbursed.

Box 4.2. **Case study: SME finance for energy efficiency**

CJSC Gadyach Cheese Factory is one of the largest producers of milk products in Ukraine. Located in Poltava, its product range consists of more than 80 products with a total annual production of 13 000 tonnes. Energy costs were the biggest cost in production, and of these, the separation of liquids and whey was the major energy-consuming process.

To increase its competitiveness, the company decided to replace the existing energy-intensive vacuum evaporation filtering system used in its cheese production with a new energy-efficient nano-filtration system. The new system eliminated natural gas consumption (more than 7 million m^3 per annum), and saved more than 25% of the electricity consumption in the production process. UKEEP (the EBRD Energy Efficiency financing facility in Ukraine) provided financing through Ukreximbank for the USD 1 million investment, which has yielded net savings of more than USD 1.5 million per year in decreased natural gas and electricity consumption, with a payback period of less than a year. The quality of production was also increased.

The investment demonstrates the value of providing credit lines through local financial institutions that have the distribution network and client relationships to reach SMEs, and the value of bringing new technology and approaches to clients to improve their competitiveness.

Source: Provided by CJSC Gadyach, Ukreximbank, UKEEP.

4.2.3. Comparative analysis

Sustainable energy credit lines administered by Ukreximbank are in many ways similar to more mainstream credit products. The credit assessment is the same for the end borrower, and usually no allowance is made for the energy-saving effects of cash-flow improvement resulting from energy efficiency. Interest rates are set at commercial levels, usually with no concessionality. In some other countries, IFIs have used a bonus payment incentive to encourage the uptake of energy efficiency lending (to avoid interest rate distortion), but in Ukraine this has not been the case.

The key differences lie in the eligibility criteria (IRR, equipment) and the additional burden associated with compliance during the application process. In return, borrowing from a sustainable energy facility may carry with it the opportunity to access technical assistance (energy audits, business plan support). Finally, although not explicit, the nature of the IFI credit lines means that these funds usually have longer maturities (3-7 years) and grace periods than might otherwise not be available on the market, particularly during periods of crisis.

Table 4.4 looks at the similarities and differences between the two credit lines.

Table 4.4. **Comparison of key features of IBRD and EBRD credit lines**

	IBRD Energy Efficiency	EBRD SME Energy Efficiency
Sector focus	Industrial, municipal, ESCO	SME, private sector only
Size	USD 200 million	USD 50 million
Sub loans	USD 30 million	USD 3 million
IFI credit line	20-30 years	5-7 years
Grace period	5-6 years	2-3 years
Eligibility	10% IRR, eligibility criteria, debt service ratio	10% IRR, eligibility criteria
Notes	No technical assistance	Technical assistance for sub-borrowers and FI
Indicators	Volume of energy savings	Volume of energy savings, GHG reductions

Source: Authors' compilation.

4.3. Barriers and key success factors

Ukreximbank has been the most successful of all local FIs in the EaP region in developing a sustainable energy-lending product and attracting a range of international credit lines to support its implementation. To date, it has concluded a total of approximately EUR 500 million with IFI and other international credit line facilities. Discussions with Ukreximbank staff and clients reveal several barriers that the team have had to overcome in developing a successful lending portfolio. These are listed below:

- **A lack of awareness among potential borrowers of the potential benefits from investments in energy efficiency projects. This is combined with exaggerated perceptions of risk associated with technology and financing**. Borrowers do not view their capital investment programmes specifically in terms of energy efficiency or climate change benefits. Often, those making investment decisions are unaware of the actual payback periods associated with such investments and have a poor understanding of the co-benefits in terms of improved quality and productivity. Investment in energy efficiency may often be regarded as an opportunity cost at the expense of increasing production or new product development. Managers are not fully informed of the full range of behavioural and low-cost best practices that can be integrated alongside capital investment, which can also improve financial returns on projects.
- **Insufficient capacity for appraising energy efficiency projects was a key challenge initially faced by Ukreximbank, and experienced by other banks developing such products in Ukraine**. The use of minimum energy-saving criteria requires that cash flow and project finance analysis should be used alongside more mainstream standard credit assessment procedures. Banks are also initially risk averse as they lack familiarity with the energy efficiency technologies and processes being financed or are not aware of the types of projects in their wider lending portfolio that may be suitable for energy efficiency finance. Banks may also prefer to fund projects that increase capacity and productivity, where the potential returns are clear, rather than those that simply reduce costs. Although energy efficiency projects often have rapid payback periods, the short tenor and

high cost of finance in Ukraine makes the prospect of resource efficiency less attractive than it might otherwise be.

- **High transaction costs are often incurred when developing energy efficiency investments**. These may include more complex loan-application procedures, energy audits, feasibility studies, monitoring and reporting of results and often the need to disrupt existing production processes while upgrading or improving facilities. Initially, Ukreximbank and its clients in Ukraine lacked familiarity with the necessary project preparation requirements expected by the IFIs.
- **Incomplete strategic and regulatory frameworks continue to limit demand for sustainable energy finance from Ukreximbank**. The slow development and implementation of national energy efficiency policies and associated sub-regulations serve to constrain the potential market for sustainable energy finance. Existing energy subsidies for fossil fuels also distort investment decisions, although recent pricing reform is now beginning to drive demand. Specific approaches are required to make complex projects bankable, such as establishing the legal status of borrowers for residential building renovation and ensuring the necessary guarantee structures for private ESCO-type of lending to municipalities or other public bodies.

Despite these challenges, Ukreximbank was able to develop a successful and sustainable energy-lending facility. Senior management and staff identified the following key reasons for their success:

- **Senior management buy-in and support**: The choice to enter the energy efficiency lending market was made as a strategic decision by senior management, with Board level approval. Directors saw the long-term market opportunity in Ukraine, and were able to align themselves with the emerging IFI and donor agenda on energy efficiency finance. This early decision has given Ukreximbank a competitive lead in the market, upon which it can now capitalise as energy pricing and other regulatory reforms appear ready to scale up investment in low-carbon development.
- **Standard bank product development**: Ukreximbank has collaborated with a number of IFIs and other international facilities. Although each IFI has different lending criteria, Ukreximbank has sought to align donor funds where possible into a standard bank-owned lending product. While the terms and eligibility vary across the credit line facilities, there has been an attempt to provide continuity in terms of the product positioning within the Ukreximbank portfolio. This has allowed the Bank to take full product ownership, rather than simply act as an intermediary for individual IFI lending operations.
- **Dedicated in-house capacity**: Ukreximbank has dedicated considerable human and financial resources to building a successful product implementation unit, with more than 10 staff (technical, marketing, credit assessment) engaged in headquarters and a responsible staff representative in each of the main branches. Although Ukreximbank benefitted initially from IFI technical support and training (primarily EBRD), it quickly brought this capacity in house, including financial assessment, technical appraisal, client training and environmental evaluation, and developed a range of tools to support these processes (e.g. savings, GHG emissions calculator). In addition, a corporate university provides seminars and distance learning.
- **Economies of scale**: Ukreximbank as the leading corporate lending bank in Ukraine has a well-established client base, giving it a steady, diversified pipeline of existing customers for its energy efficiency finance product. The client profile is

highly diversified from a sector profile. This has allowed it to achieve economies of scale in product development and distribution. It also has strong marketing capacity to promote the product using client success stories. Ukreximbank's position as a commercial state-owned lender has also allowed it to maintain lending operations during periods of political and economic instability.

Note

1. OECD (2014).

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Chapter 5

Conclusions and recommendations for policy makers

This chapter summarises the main conclusions and findings that have emerged from the analysis. The chapter also offers recommendations intended for policy makers in the Government of Ukraine. These touch upon, among other things, improvements in the macro-economic situation and investment climate, political and institutional environment, and the access to and cost of finance.

Local financial institutions in Ukraine have sought to develop sustainable energy markets by developing lending products to support industrial and household energy efficiency. This is in response to the very high levels of energy intensity in Ukraine's economy. They recognise the clear market opportunity that exists in financing the shift towards a more resource-efficient economy. While investment in renewable energy has also been growing, the profile of investment transactions has been oriented more towards equity and project-finance, drawing more heavily upon international financial institutions and concessional climate finance.

Since 2006, International finance institutions (IFIs) have provided more than EUR 500 million in sustainable energy credit line facilities to at least 10 commercial Ukrainian banks. These credit lines have been used to provide on lending to industry, commercial companies and households, primarily for energy efficiency investment. Only a limited share of these credit facilities has been used for smaller-scale renewable energy investment. It should be noted that the market for energy efficiency investment is in reality likely to be significantly larger than that represented by these facilities. Much of the investment is in energy efficiency served by mainstream corporate and small and medium-sized enterprises (SME) lending products, where there are no explicit requirements to recognise energy savings and associated greenhouse gas (GHG) mitigation impacts.

Promoting energy efficiency has a range of benefits at the national level. It can address challenges of competitiveness by reducing the high costs of fossil-fuel inputs and it can improve energy security by reducing fossil-fuel import dependence. However, sustainable energy lending, particularly to commercial borrowers, which to date has been facilitated by IFIs, has not typically been viewed by Ukrainian policy makers as an area for direct government engagement or support. These are usually fully commercial transactions between private institutions, very often with short financial payback periods. They are investments undertaken primarily for their productivity and cost benefits, and environmental or other co-benefits are usually of only secondary consideration (if at all). The assumption among IFIs has been that the market dynamics for energy efficiency finance would be self-supporting once the model had been demonstrated and borrowers were able to show net savings.

Yet the market in Ukraine to date has not developed as might have been expected when IFIs started to engage with the market over a decade ago. A number of factors noted in this report continue to hold back a dynamic market in sustainable energy finance. These include a policy and regulatory environment that is still a "work-in-progress", issues of cost of and access to finance, perverse incentives associated with energy pricing and fossil-fuel subsidies, and wider political and investment climate issues in Ukraine. Many of these are areas where policy makers can play a key enabling role. These inhibiting factors are set out in more detail below.

5.1. Strengthening the policy and institutional environment

Significant policy reforms are already underway in Ukrainian energy markets, and much has already been done to create the market opportunity for sustainable energy finance. The Energy Strategy to 2035, set out the basis for a long-term planning framework, with a clear role for energy efficiency and renewable energy in meeting overall targets for energy security, affordability and environmental protection. Many pieces of primary legislation have been developed, with the tempo of reform picking up in the last two years.

However, a significant amount of work remains to be done in finalising the legislative basis that underpins demand for sustainable energy finance. Existing legislation can be further strengthened, and new and draft legislation approved. For example, the measures agreed upon in the Energy Strategy of Ukraine to 2035 need to be implemented, and clear roles and responsibilities must be taken up by the various state institutions. Legislation associated with the Third Energy Package and other EU directives, together with laws associated with the Energy Community need to be fully adopted.

However, while primary legislation is important, it is not sufficient in and of itself. The government must support technical implementation through the development of effective sub-regulations. Ambitious energy efficiency standards for energy-consuming appliances, transport and buildings need to be enforced and ratcheted upwards over time. Ukraine can also progress towards the adoption of emission trading proposals, as more recently explored through Ukraine's engagement in the Partnership for Market Readiness and recent public declarations within the Paris Conference of the Parties. Other areas of technical support include raising awareness of energy efficiency among end-user groups, promoting energy management systems (e.g. ISO 50000 series standards, International performance measurement and verification protocol) and audits as part of the provision of energy services, and developing a specific clean energy industrial strategy to promote indigenous technology and services provision. More broadly, the government needs to ensure a level of consistency between its policies and targets for renewable energy, energy efficiency and greenhouse gas (GHG) emission reductions.

From an institutional perspective, there remain significant weaknesses in the organisation and capacity around sustainable energy planning. The State Agency on Energy Efficiency and Energy Saving is the key agency designated for the implementation of renewable energy and energy efficiency policy. However, its capacity to manage the planned transition to cleaner energy, and to mobilise finance at the scale anticipated, has not yet been tested. It seems likely that further strengthening, or partnership with other financing and implementation agencies (including commercial banks such as Ukreximbank and AB "Ukrgasbank") will be required if it is to fulfil its mandate. Further work may also be needed to clarify the responsibility for implementation of the Action Plan underlying the Energy Strategy to 2035, together with building the platform for effective co-ordination and co-operation across ministries. The Energy Regulator in Ukraine has traditionally lacked power, and will need to be bolstered to play its independent role in setting market rules that allow for the delivery of policy objectives.

5.2. Improving access to and cost of finance

Some challenges associated with access to finance for potential customers for energy efficiency finance remain. Firstly, the length of finance on offer (maturities) is often very short and does not match the potential payback periods for capital investment (either for renewables or for energy efficiency). Secondly, the cost of finance remains very high (up to 30% in local currency, with foreign exchange loans exposed to currency risk). Finally, the collateral requirements for borrowers are very high (often up to 200%). Often, finance is simply not available, due to the high-perceived credit risk, reflecting high and rising levels of Non-Performing Loans (NPLs) among loan portfolios and the need for banks to improve their balance sheets and capital adequacy ratios. Commercial banks are all but excluded from lending to public bodies and municipalities due to the risk of credit default.

To achieve the ambitious energy efficiency and renewable energy goals outlined in the Energy Strategy to 2035, a significant step-change in both public and private sector

investment will be required in addition to IFI funds, climate finance and donor programmes. Due to wider economic and financial pressures, commercial banks are currently struggling to provide the robust financial transmission mechanism that will improve energy efficiency at the level desired. The government of Ukraine should therefore examine the potential ways that it can work with partners and domestic financial institutions to achieve a step change in environmental lending.

At a macro-level, the government should consider working to pool national and international funds to create financing and technical implementation platforms that can be transformative in their size and scope. This is particularly important when addressing sectors that present significant structural barriers and borrower creditworthiness concerns (communal housing, public buildings, heat supply, and municipal infrastructure). Sources of initial capitalisation are likely to include donor funds, the Green Climate Fund (GCF) and other forms of climate finance. However, for such an approach to work sustainably at scale, attracting additional sources of public and private finance will be critical. Hypothecating environmental taxes (e.g. carbon taxes) for investment in energy efficiency projects may be one approach to capitalisation. Given Ukraine's high levels of international debt, in the longer term the government may also consider raising "debt-for-environment" swaps that were successful in Central Europe in the early 1990s with the specific goal of investing in reducing the country's energy intensity and import dependence.

ESCO models should be pursued, with further work to develop schemes that adequately share both profit (from energy savings), and risk. Where ESCO schemes have no risk sharing, there is the danger of corruption and rent seeking on both sides. ESCO markets will require some level of guarantees and support for collateral required by banks when working with municipal borrowers and public buildings to ensure that private sector capital can be attracted for investment purposes. Such ESCO type funds could make their own direct investments, but also work through existing commercial financial institutions (either as managers or as intermediaries) where these institutions have experience of appraising and investing in energy efficiency projects. Existing experience of implementing energy efficiency in municipal and residential buildings (EBRD) should be studied to identify best practices before moving towards the implementation of large-scale national schemes. In addition, working closely with the National Bank of Ukraine to explore ways to facilitate ESCOs' access to bank lending (e.g. through finance lease, or energy saving insurance) could be explored.

For commercial borrowers, the government should examine ways of improving access to and the cost of capital, as this is the key challenge in improving investment flows into energy efficiency. This can be done in several ways. Firstly, IFIs can be encouraged to scale up the provision of longer-term capital to local financial institutions, particularly during periods of market stress of instability to offset any contraction in the availability of long-term finance. Secondly, the government may consider working with donors to support the issuance of partial risk guarantees or other risk management facilities (e.g. debt-to-equity revolving funds) to address lender perceptions of default or to reduce the collateral requirements demanded of borrowers.

While IFIs are committed to not distorting commercial markets for energy efficiency and renewable energy lending, it is clear that the cost of finance remains an issue. Opportunities for concessionality should be reviewed (particularly during times of political and economic stress), and ways explored to ensure that any concessionality in the cost of funds provided could be passed through to end borrowers, rather than captured by the banks. Exposure to currency risk also remains a key issue, and IFIs and other lenders

should be encouraged to develop local currency lending facilities for energy efficiency where possible. The government should continue to examine opportunities to develop clear and transparent fiscal incentives to lower the cost of investment in energy efficient appliances and equipment.

5.3. Reforming energy tariffs

Traditionally, gas prices have been heavily regulated and subsidised, with Naftogaz incurring large losses from the resale of Russian gas. Gas tariffs have been increased several times since 2014, and steps are being taken towards the creation of a competitive gas market. Against the backdrop of these price increases, natural gas consumption has been declining rapidly since 2015. Since then, Ukraine has delayed further increases, which along with other delayed reforms, has led to suspension of the International Monetary Fund bailout. Low energy prices create a key barrier to encouraging investment in energy efficiency and upgrading infrastructure. They not only discourage end users from reducing consumption and investing in end-use efficiency, they also prevent supply-side utility companies (both power and heat) from achieving the necessary capitalisation to invest in large-scale infrastructure upgrade.

The government should continue to pursue its reforms to energy pricing and markets. A move towards market pricing is a key component of the Energy Strategy to 2035, and this transition should be implemented according to the emerging Action Plan. Increasing tariffs to cost-recovery levels (covering both capital and operating costs) would ensure that adequate capital is available for upgrading energy infrastructure and would improve incentives to invest in demand-side energy efficiency. Pricing should become more uniform across all user groups. Social protection for the poorest and most vulnerable should be targeted based on income through the welfare system, rather than integrated into energy tariff structures (something that the government is already working on). This would help avoid confusing and perverse pricing signals in relation to energy use. Such a process might also be accompanied by direct investment in housing infrastructure upgrades for social housing tenants.

Lax enforcement of penalties and legal exemptions for energy debtors is still a large issue in Ukraine, and greater enforcement powers are required to ensure that supply-side energy companies are able to access the necessary capital to invest in infrastructure upgrade. On the supply side, the current cost-plus tariff system also removes direct incentives for energy generators to invest in system efficiency, and Ukraine should continue to explore reform of wholesale energy markets and tariff systems.

Finally, while the developments of incentives for investment in the energy sector are necessary, they are clearly not sufficient. For example, the owners of energy assets in Ukraine have received funds for investments (the investment component in the regulated tariff) but have not in reality used these funds for additional capital upgrades (i.e. they are accounted for against business-as-usual investment). Economic value is therefore captured by the shareholders of power generation companies, rather than providing wider energy efficiency improvements for the economy. Incentives (also provided through large donor programmes) need to be tied to real and verified investments so that the full benefits of the investment flows and incentives can be realised. Otherwise, such incentives run the risk of failing to achieve their goal.

5.4. Improving the investment climate

As outlined at the beginning of this report, the biggest challenge in developing a market in sustainable energy lending is the political and macro-economic situation in Ukraine and its impact on the investment climate. Even if all policy and pricing reforms were instituted, the poor investment climate would still constitute a drag upon financing flows into sustainable energy. Although non-performing loans are typically lower for borrowers accessing energy efficiency credit lines than for other types of products, companies and households remain somewhat reluctant to borrow, and the commercial banks are reluctant to lend to all but their most trusted clients. It is not within the scope of this report to address these wider strategic challenges, but several key areas of reform are likely to deliver co-benefits for sustainable energy finance.

The regulatory environment needs to be transparent and fair with strong rule of law and independent judicial procedures, and an independent regulator prepared to protect investor and consumer rights as well as those of the government. Investors need to have trust in the government's ability to create a stable and transparent green investment policy, and regular changes to incentive structures should be avoided if possible, if they tend to work against the interests of existing investors. The government would do well to promote responsible business conduct more actively, specifically on environmental matters, such as resource and energy efficiency, disclosure of non-financial information and responsible supply chains.

More broadly, the government needs to ensure that international investors' rights should be strengthened, that the regulatory framework and capacity to create public-private partnerships be improved. Where possible, there should be closer engagement with investors and the private sector to promote the reform process.

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Green Finance and Investment

Access to Private Finance for Green Investments

ENERGY EFFICIENCY AND RENEWABLE ENERGY FINANCING IN UKRAINE

This report provides a case study for the development of sustainable energy lending in Ukraine. It reviews the macro-economic and political context for green investments in Ukraine, before looking in more detail at the role and capacity of the banking sector. The study is part of a wider OECD project promoting access to private finance for green investments in the EU Eastern Partnership (EaP) countries, and follows on from a regional assessment undertaken in 2015. This work forms part of the "Greening Economies in the European Union's Eastern Neighbourhood" (EaP GREEN) programme, which aims to support the six Eastern Partnership countries to move towards a green economy by decoupling economic growth from environmental degradation and resource depletion.

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