

**SPECIAL STUDY**

# **Climate Initiatives**

EvD ID: SS18-115

June 2019

**EBRD EVALUATION DEPARTMENT**



**European Bank**  
for Reconstruction and Development

Evaluation Department Special Studies review and evaluate Bank activities at a thematic or sectorial level. They seek to provide an objective assessment of performance, often over time and across multiple operations, and to extract insights from experience that can contribute to improved operational outcomes and institutional performance.

The Evaluation Department (EvD) at the EBRD reports directly to the Board of Directors, and is independent from the Bank's Management. This independence ensures that EvD can perform two critical functions: reinforcing institutional accountability for the achievement of results; and, providing objective analysis and relevant findings to inform operational choices and improve performance over time. Whilst EvD considers Management's views in preparing its evaluations, it makes the final decisions about the content of its reports.

This report is circulated under the authority of the Chief Evaluator. The views expressed herein do not necessarily reflect those of EBRD Management or its Board of Directors. Responsible members of the relevant Operations team were invited to comment on this report prior to internal publication. Any comments received will have been considered and incorporated at the discretion of EvD.

Report prepared by Bob Finlayson, Associate Director and Senior Manager, EBRD Evaluation Department.

## Contents

<i>Abbreviations</i>	
<i>Executive Summary</i>	
1. Introduction.....	1
1.1 Rationale	
1.2 Objectives of the Study	
1.3 Evaluation Approach and Limitations	
1.4 Structure of the Report	
2. Review of Climate Initiatives.....	4
2.1 Overview	
2.2 The International Context	
2.3 EBRD's Response to Climate Change	
2.4 Previous Evaluations and Internal Audits	
3. Evaluation of Sustainability Initiatives.....	12
3.1 Overview	
3.2 CI Challenges in Context	
3.3 CI Strategy and Objectives	
3.4 CI Structure and Operations	
3.5 CI Portfolio	
3.6 CI Performance	
3.7 Evaluation Conclusions	
4. Implications of Findings for the CI Program .....	40
4.1 Overview	
4.2 Opportunities to Enhance CI Performance	
Annex 1: Climate Change - Global Overview.....	52
Annex 2: Climate Funds.....	55
Annex 3: Previous Evaluations and Audits of Sustainable Initiatives.....	57
Annex 4: EBRD's Sustainability Program .....	70
Annex 5: Case Study – Egypt .....	81
Annex 6: Case Study - Kazakhstan .....	89
Annex 7: Case Study - Ukraine.....	98
Annex 8: Opportunities to Enhance Creditworthiness of CI Infrastructure Projects .....	108
Annex 9: Management Comments.....	122

## Abbreviations

ABI	Annual Bank Investment
ATQ	Assessment of Transition Qualities
BAT	Best Available Technology
BOO	Build Own Operate
BPN	Business Performance Navigator
CAS	Central Asia
CBA	Cost Benefit Analysis
CC	Climate Change
CCS	Carbon Capture Storage
CDM	Clean Development Mechanism
CEB	Central Europe & Baltics
CF	Carbon Finance
CI	Climate Initiatives
CIF	Climate Investment funds
CO <sub>2</sub>	Carbon Dioxide
COO	Countries of Operations
COP	Conference of Parties
CRR	Capital Resources Review
CTF	Clean Technology Fund
DCF	Donor Co-Financing
DTM	Data Tracking Module
E2C2	Energy Efficiency Climate Change
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EEC	Eastern Europe & Caucasus
EIB	European Investment Bank
EIRR	Economic Internal Rate of Return
EOP	Energy Operations Plan
EPC	Engineering, Procurement & Construction
EPG	Economic Policy & Government
ESAP	Environmental & Social Action plan
ESBP	Environmental Sustainability Bond Program
ESD	Environment and Social Department
ESIA	Environmental Social Impact assessment
ESMP	Environmental & Social Management Plan
ESMS	Environmental & Social Management System
ESP	Environment and Social Policy
ESS	Energy Sector Strategy
ETC	Early Transition Countries
ETI	Expected Transition Impact
ETS	Emissions Trading Scheme
ESCO	Energy Servicing Companies
EU	European Union
EVD	Evaluation Department
FCY	Foreign Currency Finance
FI	Financial Institutions

FINTECC	Finance and Technology Transfer Centre for Climate Change
FIRR	Financial Internal Rate of Return
FIT	Feed in Tariff
GCAP	Green City action Plan
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GEFF	Green Economy Financing Facility
GET	Green Economy Transition
GFC	Global Financial Crisis
GHG	Green House Gases
GrCF	Green Cities Framework
HQ	Headquarters
IAD	Internal Audit Department
IEA	International Energy Agency
IEG	Independent Evaluation Group
IFC	International Finance Corporation
IFCA	Investment Facility for Central Asia
MDB	International Financial Institutions
IRENA	International Renewable Energy Agency
IPCC	International Panel on Climate Change
LCY	Local Currency Finance
LED	Light Emitting Diode
MCCF	Multilateral Carbon Credit Fund
MDB	Multilateral Development Banks
MEI	Municipal Environmental Infrastructure
MEIS	MEI Strategy
MidSEFF	Mid-Size SEFF
MIS	Management Information System
MRV	Measurement, Reporting and Validation
MWh	Megawatts per hour
NDC	Nationally Determined Contributions
NEEAP	National Energy Efficiency Action Plan
NIF	Neighbourhood Investment facility
ODI	Overseas Development Institute
OECD	Organization for Economic Cooperation and Development
OL	Operations Leader
PCM	Project Complaint Mechanism
PD	Probability of Default
P&E	Power & Energy
PFI	Participating Financial Institution
PIP	Public Information Policy
PMM	Project Monitoring Module
PODD	Procurement Operations and Delivery Department
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PR	Performance Requirements
PTI	Portfolio Transition Impact
RE	Renewable Energy
REDD	Reducing Emissions from Deforestation & Forest Degradation

---

RO	Resident Office
ROA	Return on Assets
RoRC	Return on Required Capital
SCF	Strategic Capital Framework
SDG	Sustainable Development Goals
SEAP	Sustainable Energy Action Plan
SEE	South Eastern Europe
SEFF	Sustainable Energy Financing Facility
SEI	Sustainable Energy Initiative
SEMED	Southern & Eastern Mediterranean
SIP	Strategy Implementation Plan
SME	Small & Medium Enterprises
SRI	Sustainable Resource Initiative
SSF	Special Shareholders Fund
TA	Technical Assistance
TC	Technical Cooperation
TCRS	TC Reporting System
TFP	Trade Facilitation Program
TI	Transition Impact
TIMS	Transition Impact Measurement System
TOMS	Transition Objectives Management System
TOP	Transport Operations Policy
TOR	Terms of Reference
TPES	Total Primary Energy Supply
TPV	Total Project Value
TSS	Transport Sector Strategy
UN	United Nations
UKEEP	Ukraine Energy Efficiency Program
UNFCCC	United Nations Framework Convention on Climate Change
UREEP	Ukraine Residential Energy Efficiency Program
URP	Unfunded Risk Participation
USD	United States Dollar
USELF	Ukraine Sustainable Energy Lending Facility
VP3	Vice President Policy & Partnerships
WBG	World Bank Group
WBIF	Western Balkans Investment Framework
WRI	World Resource Institute

---

## Executive Summary

Recognition of climate change (CC) as a major global public policy challenge has grown since key concerns were raised in 1992. Developed countries were urged to mobilize US\$100bn annually by 2020 and a comprehensive framework was agreed in Paris in 2015 based on enforceable country-level commitments to carbon targets.

This gave a substantial further push to climate-related efforts by the multilateral development banks (MDBs) that were already growing as a share of operations.

Against this backdrop EBRD substantially increased the strategic priority to be given to work on sustainability and, more specifically, climate. Management proposed and the Board approved a series of major programmes built around the Bank's growing ambition to help deliver on the Paris Commitments. The Sustainable Energy Initiative (SEI) was approved in 2006 and subsequently widened beyond energy. Green was introduced as a transition priority, and the Green Economy Transition initiative (GET) of 2015 committed to a sharp increase in green finance as a share of bank investment.

Climate-related concerns were at the core of each of these initiatives, and were critical in gaining the strong support of shareholders. This evaluation focuses principally on their climate dimensions and for this reason refers to them collectively as the Bank's Climate Initiatives. They include designing operations to tap major sources of concessional finance, developing new financing products, tools and internal processes; internal resource reallocation; and, new programmatic priorities, targets and benchmarks. Substantially stronger claims were made about programmatic importance and effectiveness relative to climate concerns, and substantially greater use made of concessional resources.

Together these are among the Bank's historically most ambitious strategic commitments. This evaluation reviews the main climate initiatives in terms of strategic objectives, operational focus and instruments, organization arrangements, portfolio structure, and performance. It assesses achievements against objectives and, to the extent data are available, broader programme impacts. It confirms that EBRD has initiated major steps on an institution-wide basis to respond to shareholder directions. The Bank has had considerable success amongst its MDB comparators and with respect to meeting financing targets. At the same time, the evaluation also confirms opportunities to strengthen existing approaches and the pressing need to improve processes. This includes much improved clarity as to priorities and objectives, particularly with respect to results; a more systematic and transparent approach to allocating resources; and, building capacity to assess actual results in accordance with country needs.

## Key Facts

**Climate change is an important issue in EBRD's countries of operation (COO);** energy efficiency (EE) has improved but still lags; vulnerabilities to CC are significant and capacities to adapt vary widely

**CI has become arguably the Bank's top strategic and operational priority,** reflected in multiple initiatives whose operational targets increasingly drive core business.

**EBRD has made major organization and process changes to deliver on CI,** including a sharp expansion in dedicated staff and setting explicit financing targets for banking teams.

**Financing targets are high;** GET funding has grown rapidly and is to exceed 40% of ABI by 2020.

**Commercial finance is intended to dominate;** private finance was 61% of GET ABI between 2014 and 2018; but commercial co-financing has been dropping.

**Concessional co-finance is important and growing,** including use of TC grants; EBRD is now the single largest recipient of GCF financing (€423M in 2017).

**CI investments and grant use are highly concentrated.** Energy Efficiency (81%) gets the bulk of ABI while SEFFs and RE account for relatively little; RE is the main user of concessional loans.

**On performance:** GET targets are limited to climate finance volume which have been met consistently; financial results compare well to EBRD's overall portfolio; 95% was allocated to mitigation vs. 5% to adaptation.

**Targets for physical results** were dropped shortly after introduction; and estimates of expected GHG avoided are declining.

While the availability of data conforms with requirements of and commitments to donors, **large data gaps exist, particularly on concessional funding**; it is not possible to establish the relative efficacy of TC use between project preparation (the bulk) and policy dialogue.

## Main Findings

### CI Programme Design, Objectives and Relevance

- EBRD has built an ambitious business plan on core capacities in energy efficiency and become a leading MDB implementing global climate agreements.
- It is competing effectively for the external/concessional resources critical to CI delivery.
- Climate change and adaptation have been added to CI's core theme of EE.
- Introduction of materials efficiency under the SRI does not appear critical nor is it prominent in the portfolio; however it does potentially allow almost all projects to be classified GET "sustainable."
- The SRI and GET initiatives dropped the use of important quantitative physical climate change targets such as carbon emissions avoided.

### Key Financial Points

- All CI targets for financial volumes and TIs have been achieved; portfolio financial performance compares favourably with the Bank's overall portfolio.
- CI investment is largely denominated in foreign currency (FCY), creating well-known mismatch risks and potentially higher whole of life project costs in real terms.

### Metrics, Evidence and Data Adequacy

- No verification of forecasts is available; monitoring, reporting and verification (MRV) is limited to ex ante estimates of expected savings which tend to the low end of stated expectations..
- E2C2 indicates it samples projects to verify ex ante estimates with actual ex post results; but there is no reporting process in place, nor any documentation.
- ESD and EPG independently collect ex post data on a portfolio level and for selected projects, but there is a lack of verifiable figures compared to ex ante estimates at the project level.
- There are no measurable climate change impacts despite significant investments in country, sector, and city EE plans. There is no data in the CI databases, or reports on country-level baselines and targets for avoiding GHGs in individual COOs.
- Despite growing amounts of concessional finance, additionality cannot be validated with verifiable impact data, as there is no data on counterfactuals such as control groups for concessional finance.
- Transaction targets for mitigation and adaptation have limited information content in the absence of data on how it is addressing country needs.
- Management indicated to the Audit Committee in 2016 it would develop an ex post reporting system on climate change emissions to augment its ex ante reporting system.
- Data definitions make it difficult to determine how the underlying metrics have been constructed.

- CI databases do not capture some department specific (FI, MEI) sources of concessional finance; or a comprehensive set of verified ex post data, making it impossible to determine unit costs of CI support from an EBRD perspective.
- Linkage is weak between the application of TC resources and expected results; it is not possible to assess the relative effectiveness in GHG terms of concessional support for commercial investments.
- Metrics on adaptation are limited to number of transactions and GET volume; both are low.

#### Internal Incentives

- Project preparation methods create clear incentives to achieve the 40% ABI GET target; GET classification determines access to the third party concessional finance critical for project viability.
- However the performance management framework, staff incentives, and resourcing are not focussed on actual climate mitigation/adaptation results at an operational or programmatic level.

#### Use of TC

- TC funds go mainly to project preparation; funding for policy dialogue, capacity development, and preparation of climate strategies are reported to have become more important since SEI3.
- Project-level data on Non TC/TC is uneven and not reconcilable with DCF Annual Reports.
- No data on project TCs is available in the TCRS system since 2016; data for Non-TC finance is only available from 2014.
- RE and Industrial EE are almost 3X more effective than SEFFs and MEI EE in terms of GHG savings/€ Non TC, yet the latter are much more heavily supported. Country Level Issues
- National governments are lacking reliable data on adaptation requirements, carbon budgets, base lines, or targets.
- There is little incentive to target GHGs savings at the country level; country plans in support of Nationally Determined Contributions (NDCs), do not yet exist.
- Funding for policy advice does not appear to be prioritised based on the expected GHG saving impact on individual country / sector level.
- While there are many market studies and action plans they often focus narrowly on EE goals and simply list the range of potential EBRD services; they are not used in country reporting within EBRD.

#### Opportunities for Improvement

Major opportunities for improvement merit close consideration by Board and Management.

##### Focus on Results

- **Establish specific climate goals versus** the current exclusive focus on financing volumes.
- **Develop an Impact Management Framework** to clearly link estimated impacts with actual results that are monitored and credibly verified.
- **Clarify GET's Scope to differentiate between climate change and sustainability** and increase focus on supporting low carbon infrastructure capacity in sectors such as RE and price reforms.
- **Develop Country Plans and Improve Quality of Data** to provide baselines and time-bound savings/resilience targets, and ensure ex-post results data are produced, verified and reported.

##### Operational Delivery

- **Ensure substantially additional resources for activities critical to broader programmatic relevance and success, such as diagnostic and analytical work, monitoring and reporting**
- **Track and assess the effectiveness of policy dialogue work**, again supported by improved incentives and additional resources.

**Allocating Concessional Funds**

- **Use Business Cases and Expected Impact to Allocate Concessional Funding** to maximise GHG reduction/€ or resilience rather than on the basis of expected project ABI.
- **Improve analytical tools and the information base** to target concessional funds to high impact

**Mobilize Private Finance**

- **Widen the range of potential sources**– Shift the focus of concessional blending from improving affordability to improving bankability and mobilising private commercial co-financing using unfunded and funded instruments.
- **Use credit enhanced infrastructure to mobilise private finance** such as offtake and early termination funds for PPPs to make projects more attractive for financing such as green bonds.
- **Make Greater Use of Local Currency Finance** – Design offtake arrangements such as power purchase agreements in LCY; assess LCY capacity in country strategies, and where required strengthen local capacity to enable foreign participation in local financial markets.

**Recommendations**

EvD's specific recommendations follow directly from these assessed opportunities and are situated firmly in the central context of the CI programmes, namely that: climate-related concerns were at the heart of MDB and shareholders' Paris commitments; the EBRD is making an institution-wide effort and has accumulated rich experience; but that there is both need and scope for design and delivery changes to improve strategic focus and programmatic effectiveness.

1. **Strengthen and clarify the broader strategic context and objectives of the climate related components of GET.** The objective should be clear alignment with the Paris Agreement, using selective programmatic approaches in line with low carbon pathways and taking account of NDCs.
2. **Intensify Private Mobilization** - Strengthen creditworthiness of project designs to private partners by strengthening the focus on project designs that derive acceptable risk return profiles for private sector financiers by making innovative use of unfunded and funded instruments to strengthen project risk profiles and target mobilization in total, rather than ABI.
3. **Strengthen Institutional Arrangements for Concessional Climate Funds** – Provide E2C2 with a mandate to manage the portfolio of concessional climate funds, with an overarching objective to mitigate climate change effects by reducing GHG emissions in its COOs and reducing vulnerability to CC; maximize potential for private co-finance to achieve this objective; and regularly report to the Board on the achievement of physical climate change objectives.
4. **Increase capacity to use LCY finance** – direct resources to Treasury to improve foreign access to local capital markets; country strategies should assess LCY finance options and main constraints; LCY should feature specifically in country strategies and Bank Scorecards.
5. **Strengthen Management Information System** – The Technical Cooperation Reporting System (TCRS) or some equivalent urgently needs to be made operational to capture project level TC data. CI databases need to be integrated and ex ante and ex post data collected at the country and project level on variables such as COO vulnerability and carbon budgets, baselines and targets for net and gross emissions, expected lifetime emissions savings, scoring for improvements in resilience, sources of co-finance, and unit costs of outputs and outcomes.

6. **Management Report to the Board** – Management should submit a report to the Board within no more than 12 months providing a detailed discussion of implementation of these recommendations, including explicitly identifying resources, responsibilities and timelines.

---

# 1. Introduction

## 1.1 Rationale

Climate change, and its implications for sustainability, has become an increasingly important priority for the international community and European Bank for Reconstruction and Development (EBRD). The United Nations (UN) Framework Convention on Climate Change (UNFCCC) identified the stabilization of greenhouse gas (GHG) concentrations in the atmosphere as a priority as early as 1992. Since then there have been numerous international forums highlighting the risks of rising carbon emissions. In 2009 at the Copenhagen Accord it was agreed "deep cuts in global emissions are required...with a view to reduce global emissions so as to hold the increase in global temperature below 2 degrees Celsius". Developed Countries agreed to commit to mobilizing jointly USD100bn annually by 2020 to address the needs of developing countries. This funding would come from a "wide variety of sources, public and private, bilateral and multilateral" and be channelled through the Green Climate Fund (GCF).

In 2015, at the 21st Conference of Parties (COP21) of the UNFCCC in Paris it was agreed there was a need to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C", and sought an agreement on climate change mitigation and adaptation. 196 countries signed the UNFCCC and committed to Nationally Determined Contributions (NDC) to limit or reduce carbon emissions, starting in 2020. Soon after COP21, at the UN's Financing for Development Conference in Addis Ababa, Ethiopia, the Sustainable Development Goals (SDGs) for 2030 were agreed. The SDGs included objectives to guide the sustainability and development agenda that had particular relevance to how Multilateral Development Banks (MDBs) should support initiatives to address climate change mitigation and adaptation.

Underpinning these objectives, a framework for financing sustainable development was agreed by the MDBs to increase resource mobilization by \$1.0-1.5trn per annum (pa) by aligning public and private financing flows and policies with economic, social and environmental priorities. The G20 Summit meeting in Hamburg in 2017 reaffirmed the urgency for climate action and issued the G20 Hamburg Climate and Energy Action Plan for Growth, which highlighted the importance of the transformation of the energy system through energy efficiency (EE) and renewable energy (RE).

It was against this backdrop EBRD developed the following climate Initiatives (CI): (i) the Sustainable Energy Initiative (SEI) approved by the Board in 2006; (ii) the Sustainable Resource Initiative (SRI) approved in 2013; and (iii) the Green Economy Transition (GET) initiative approved in 2015. SEI focussed almost exclusively on energy and its linkage to climate change, SRI encompassed SEI and started to roll out adaptation and introduced water and resource efficiency, and GET sought to mainstream climate change and sustainability across the Bank.

One of the primary features of the CI program was access to international concessional climate finance, with EBRD receiving commitments for USD423mn from the GCF in 2017. The Special Shareholders Fund (SSF) was an important source of GET funding, providing €29mn in 2017. The increasing importance of donor and SSF concessional funding to mobilise external finance for climate change has meant there has been steadily growing interest both internally and externally to EBRD on how these projects are performing. These developments provided the rationale for the study.

---

## 1.2 Objectives of the Study

The evaluation reviews the performance of the CI program against its objectives. The report analyses which financing and policy dialogue activities were most effective and efficient in meeting CI objectives and the critical constraints and risks impacting on operations. In line with this analytical framework, the evaluation provides answers to the following questions:

- Were the CI objectives relevant and well-suited to the requirements of the countries of operation (COOs) and the institutional context of EBRD?
- Was the CI program implemented effectively?
- What have been the results of the CI to date?
- Does experience suggest ways the effectiveness, efficiency and sustainability of the CI operations can be improved?

On the basis of this analysis, the evaluation identifies opportunities to improve the performance of EBRD's future climate operations.

## 1.3 Evaluation Approach and Limitations

Initially, the evaluation provides an overview of the international climate change initiatives, and where the CI program sits within that framework. The CI program is then evaluated to identify the demand for support, its strategic objectives, organization arrangements and process for developing and managing its projects and measuring performance, and the CI portfolio structure. The study assesses the degree of achievement of the planned outputs, outcomes, and to the extent data is available, the broader project impacts. The study concludes with a review of opportunities to improve CI performance. The evaluation draws upon desk research, previous evaluations, case studies, and meetings with management. Field visits were made to Egypt and Ukraine to interview stakeholders such as government agencies, climate funds, other MDBs, and project sponsors.

The main limitation of the evaluation arises from the diversity and scale of the CI program which encompasses almost 1,400 projects across the full spectrum of the EBRD's operations. The program covers a 12 year period and priorities and methods of operation have changed significantly. The quality of data varies across financial instruments and time period. As a result, the evaluation is exploratory in nature. It was necessary to focus on a core set issues that appeared to be most relevant to the CI objectives and their attainment. Due to the scale of the CI program, some of these issues extended beyond climate change, and have implications for EBRD's overall operations. The analysis concludes by identifying opportunities for improvements in operations, and possible areas for further in depth analysis.

## 1.4 Structure of the Report

The balance of this report is structured as follows:

- Section 2: Review of Climate Initiatives;
- Section 3: Evaluation of the Climate Initiatives; and
- Section 4: Implications of Findings for Climate Initiatives.

The following appendices provide additional information:

- Annex 1: Climate Change – Global Overview
- Annex 2: Climate Funds
- Annex 3: Previous Evaluations of Climate Initiatives
- Annex 4: EBRD's Climate Program
- Annex 5: Case Study - Egypt
- Annex 5: Case Study - Kazakhstan
- Annex 7: Case Study – Ukraine
- Annex 8: Opportunities to Enhance Creditworthiness of CI Infrastructure Projects
- Annex 9: Final Management Comments

## 2. Review of Climate Initiatives

### Key Facts:

- The attainment of the Paris Agreement targets will require improvements in energy efficiency, increasing the stock of low carbon infrastructure such as renewable energy and energy storage, improving the grid capacity to integrate renewable energy sources and developing new technologies including for carbon capture.
- To achieve these goals, additional funds will be required from the public and private sector;
- Most countries are still in the early stages of identifying alternative ways to reduce GHGs, adapt to climate change and develop and fund low carbon investments
- MDBs are playing a central role mobilizing and disbursing climate finance and they have developed common accounting standards and reports; and
- Monitoring, reporting and validation frameworks will underpin assessments of progress on achieving the NDCs and they are expected to play a central role determining the future allocations of climate finance

### 2.1 Overview

A defining feature of the climate change problem is its global nature as emissions tend to disperse relatively uniformly across the globe, independent of source.<sup>i</sup> As a result, a global response is required to address this problem, and these considerations provided the basis for the Paris Agreement in 2015, where 196 countries agreed to implement NDCs. In 2018, at COP24 in Katowice a framework was agreed to implement the Paris Agreement that defines how information on climate change action will be measured and reported, and the process for mobilising climate finance. Key themes endorsed at COP24 included the need to foster Public Private Partnerships (PPPs), and make greater use of concessional funds to meet countries' adaptation needs.<sup>ii</sup>

While there is global acknowledgement that climate change creates social and economic risks, actions to address the issue have been controversial for the following reasons:

- There is often seen to be a trade-off between reducing energy consumption and other sources of emissions, versus supporting growth and maintaining jobs;
- There are non-linear relationships between climate mitigation actions and changes in temperature that are not yet well understood, introducing a high level of uncertainty into how and when reforms should be implemented to mitigate and adapt to climate risks; and
- There has been a lack of data that provides a clear business case for countries to implement climate change reforms. The SDG program pursued by agencies such as the UN and MDBs has sought to address these concerns by developing emissions mitigation and adaptation programs that attempt to reconcile these contradictions by promoting sustainable inclusive growth. OECD estimates the benefits of these initiatives are large and when impacts of avoiding climate damage are taken into account, the net effect on GDP in 2050 rises to nearly 5% across developed and emerging economies, relative to current projections.<sup>iii</sup>

### 2.2 The International Context

#### 2.2.1 Emissions Growth

Evidence collated by the Intergovernmental Panel on Climate Change (IPCC) indicates the global temperature is rising, and it is occurring at an increasingly rapid rate, particularly in the northern hemisphere (Figure 1). A report issued by the IPCC in 2018<sup>iv</sup> concluded the risks of climate change are

larger and happening sooner than expected, and the amount of additional emissions compatible with 1.5°C (remaining carbon budget) is equivalent to about 10 years at the current annual emissions rate. To limit warming to 1.5°C with “no or limited overshoot” net global CO<sub>2</sub> emissions need to fall by about 45% from 2010 levels by 2030 and reach “net zero” by around 2050. UN data presented in Figure 2 indicates that GHG historical emissions are mainly sourced from the energy sector, followed by transport, land use and agriculture. Further details on the global drivers of climate change are presented in Annex 1.

Figure 1: Temperature Anomalies 1850-2017

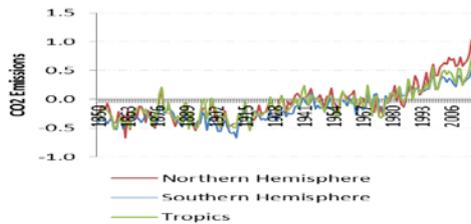
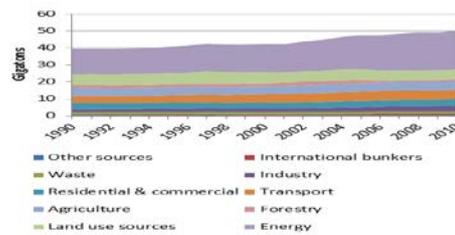


Figure 2: Global Sources GHGs



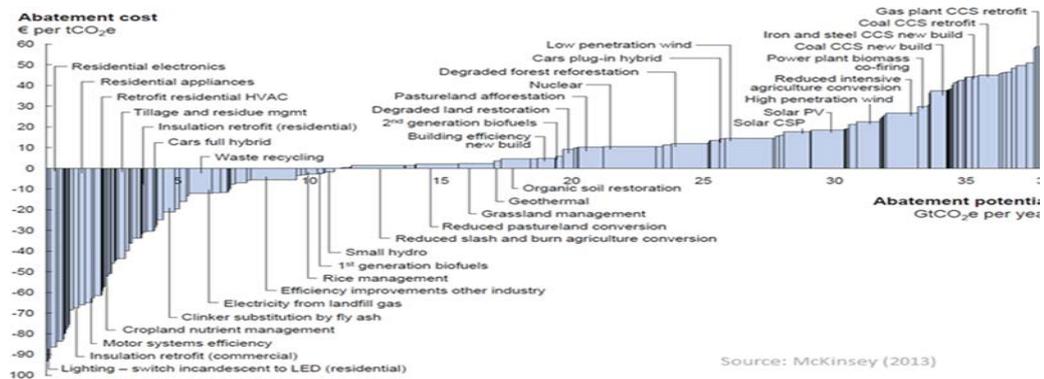
Source: Met Office Hadley Centre  
<https://www.metoffice.gov.uk/hadobs/hadcrut4/index.html>

Source: Food and Agriculture Organization of the United Nations (FAO) (2017) <http://www.fao.org/faostat/en/?#data/>

### 2.2.2 The Need for Mitigation and Adaptation

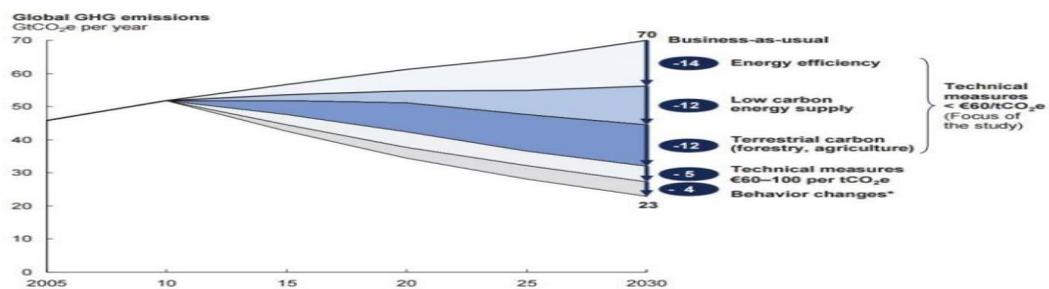
The NDCs agreed in 2015 define high level targets on how countries intend to reduce their emissions relative to pre-industrial baselines, but the means these reductions are achieved are not specified and will tend to be unique to each country. The generic mitigation options available to a country can be illustrated by an abatement curve that identifies the potential of different technologies relative to their unit cost. Figure 3 sets out an example of an abatement cost curve developed by McKinsey in 2013.

Figure 3: Carbon Abatement Cost Curve



Due to the magnitude of the emissions problem, no technical option on its own will be sufficient to achieve the NDC targets and a range of solutions will be required, as illustrated in Figure 4. International Energy Agency (IEA) estimated in 2017 energy accounted for at least 66% of GHG emissions, and under its base case “New Policies” scenario, EE will account for about 44% of required energy savings and RE 36%.<sup>v</sup>

Figure 4: GHG Abatement Potential



Source: McKinsey, 2013

Under the Paris Agreement countries will also need to start to plan for and invest in facilities that support adaptation and resilience. Vulnerability to climate change varies across sectors and countries, and projections of local and regional change are uncertain. As a result, it is not possible or beneficial to address all the needs for adaptation at a single point in time and strategies will have to evolve. Adaptation strategies will need to be developed at the regional, national and city level that are based on regular vulnerability assessments and identification of adaptation requirements under various scenarios. New systems will be required to monitor, validate and evaluate results. This information can be used to inform stakeholders when facilities and behaviour need to be modified to reflect expected climatic conditions.

### 2.2.3 Investment and Funding Requirements

The decarbonisation of the economy is projected to require substantial additional investments that will require the mobilization of funds from both traditional and non-traditional public and private sector sources.

Table 1: Climate Change Investment Requirements<sup>vi</sup>

The attainment of the mitigation objectives of the Paris Agreement is expected to require substantial investment to decarbonise the energy and transport sectors, and improve EE. The IEA has estimated under its 2°C 66% probability scenario that 95% of the electricity generated will need to be low-carbon by 2050, 70% of new cars would be electric, the entire existing building stock would have been retrofitted, and the CO<sub>2</sub> intensity of the industrial sector would be 80% lower than today. Most scenarios of global pathways that keep warming “well below 2°C” require not only a reduction in emissions of all GHGs, but also “net negative” emissions after 2050. Bioenergy and power plants fitted with CCS are a potential means to create “negative emissions”, although the required technologies are not yet commercially viable. It is expected that land-use and forestry will have to go from being a net emitter to a net sink of GHG emissions through actions such as reforestation, avoided deforestation, and conservation and use of soils as carbon stocks.

Most countries are still in the early stages of identifying alternative ways to reduce GHGs and develop and fund low carbon investments. These programs have the following characteristics:

- New policies, structural reforms, innovation and technology, carbon prices (taxes) and/or fiscal payments (subsidies), and regulation and institutional capacity will be required;
- There are large subsidies provided to fossil fuels that can potentially be scaled back;
- Only a small proportion of CO<sub>2</sub> emissions, mainly in the transport sector, are priced and even where they exist, they are set at levels far below the level of €60/tonne of CO<sub>2</sub> equivalent estimated by McKinsey in 2013; and

- In most regions carbon markets that could attract private investment are still in a nascent stage of development and this gap has meant the public sector has had to take the lead on developing and financing climate change programs.

Governments are playing an important role promoting small-scale private EE investments by removing regulatory distortions, improving the flow of information on the benefits of these reforms and providing subsidies. Residential and industrial facilities are typically financed by personal or corporate loans, often with blended public sector investment grants that are used to overcome information asymmetries and commercial risks associated with adopting unknown new technologies.

Less progress has been made in the mobilization of additional funding for low carbon infrastructure. RE still only accounts for a small proportion of global energy capacity and the process of electrifying the transport sector has hardly started in most countries. Investment decisions over the next decade on the type of infrastructure that is developed will be an important determinant of future GHG emissions for the next 20-50 years. These investments are high risk as they may be vulnerable to stranded costs if climate change effects materialise sooner than expected. Similar to EE, the large scale of investment will require finance from both public and private sources.

Adaptation is becoming an increasingly important objective for countries, but to date there is very little data available on likely investment requirements. Given the lack of progress on limiting GHG emissions, and rising temperatures, the investment requirements are potentially large.

#### 2.2.4 Sources of Climate Finance

Global climate finance funds such as the GCF<sup>vii</sup> and large bilateral donors such as the EU are the primary vehicles for collecting and disbursing concessional climate funds from developed to developing countries and volumes are projected to reach USD100bn pa by 2020. Both mitigation and adaptation are high priorities and GCF has a policy of allocating funds 50:50 between these objectives.

MDBs are a primary mechanism for disbursing these funds; they are being sub contracted by the climate funds to disburse finance by scaling up their own climate financing operations.

- MDB operations provide technical cooperation (TC) funds to develop policies and institutional capacity within governments, directly financing projects, and mobilising third party co-finance.
- In many cases, MDB co-financing is mobilised by blending concessional finance from climate funds with commercial co-finance. In 2013-14 it was estimated the MDBs supported more than 30% of public finance flows to developing countries, and about 50% of private.<sup>viii</sup>

In 2017 the MDBs committed USD33bn of own funds, an increase of 20% over the previous year, and mobilised USD51.7bn from external sources (Figure 5). More than 70% of MDB climate finance was allocated to public sector clients, most directed at mitigation investments (Figure 6).

Figure 5: Total MDB climate finance commitments, 2011-2017

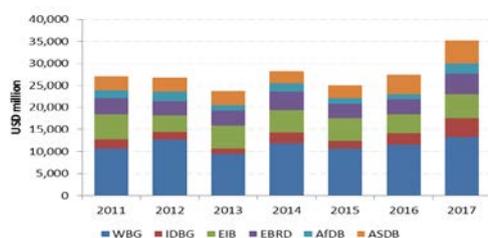
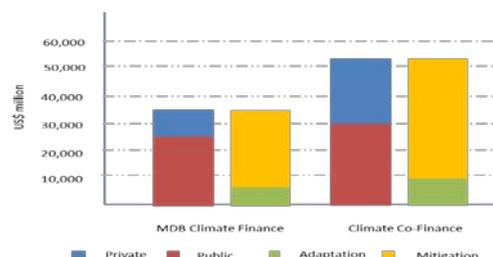


Figure 6: Total MDB climate finance and net climate co-finance, 2017 (in US\$ million)



---

Source: 2017 Joint Report on Multilateral Development Banks' Climate Finance

### 2.2.5 Tracking the Performance of Climate Change Interventions

The NDCs are the primary mechanism to operationalise the achievement of the Paris Agreement goals, and the allocation of climate finance will be guided by the performance of mitigation and adaptation programs, as determined by measurement, reporting and verification (MRV) systems established at the country level. The principles for identifying and monitoring climate change are complex, particularly for adaptation, which is integrally related to, and difficult to differentiate from, development. The Paris Agreement in 2015 recognised this issue and stated that a universal and harmonized MRV framework would be developed so countries could report on progress achieving mitigation and adaptation goals, policies and plans. Details on the information that should be tracked, and the methods to collect data and prepare reports were approved at COP24 in 2018 and will be formally implemented by 2020.<sup>ix</sup> It is expected that country reports will be submitted on a biennial basis and subject to independent verification by technical experts.

## 2.3 EBRD's Response to Climate Change

EBRD has been a leader amongst MDBs in the development of programs to address climate change. EE has been a priority for EBRD since its inception in 1991; reductions in energy consumption can improve firms' competitiveness and contribute to transition. With the growing awareness of potential risks of global warming from the early 1990s, and their close linkage to energy consumption, it was a natural progression for EBRD to start working on both EE and climate change.

In 2006, following a request from the G7 summit in Glen Eagles for MDBs to step up their clean energy financing activity, the SEI was approved with the aim of scaling up sustainable energy investments in its regions of operations, focussing initially on EE and then RE. SEI was implemented in 3 phases, and in SEI3, approved in 2012, the focus was broadened from mitigation, to include adaptation, particularly in regard to water. In 2013 SRI was approved, which subsumed SEI, and introduced the concepts of water and materials efficiency and broader issues of circular economy. In 2015, in the run up to COP 21, EBRD launched GET, which set a target of 40% of total EBRD investment in green climate finance by 2020. The target will be reached through projects that advance the transition to a low-carbon, resilient economy and help prevent economies from being locked into a carbon-intensive, pathway.

EBRD's business model is based on the operating principles of transition impact (TI), sound banking and additionality, and it pursues a private sector development model. All projects are in compliance with EBRD's Environmental and Social Policy (ESP) and they are designed to meet European Union (EU) standards within a reasonable timeframe. Financing is based on 4 components: (i) commercial finance from EBRD; (ii) commercial co-finance from third parties; (iii) concessional blended Non-Technical Cooperation (TC) finance; (iv) and TC. Following the approval of GET, the share of climate finance relative to total EBRD annual bank investment (ABI) increased from 15% in 2016 to 43% in 2017 reflecting the progressive mainstreaming of climate action across countries and sectors of operations of EBRD.

Financing was guided within COOs by Country Strategies, Green TI gaps, and energy action plans developed in a number of countries, linked with project investments that were directly financed by EBRD or indirectly financed with intermediated finance disbursed through Sustainable Energy Financing Facilities (SEFFs). SEFFs focused mainly on smaller loans up to €5mn using credit lines to participating financial institutions (PFI). Projects were supported with: (i) Non TC funds in the form of; investment grants and concessional loans to incentivise climate investments; and (ii) TC for project preparation, capacity building and policy dialogue. The utilisation of concessional funds is regulated by harmonised

MDB guidelines<sup>x</sup> that are based on the following principles: (i) additionality/rationale for using blended finance, (ii) crowding-in and minimum concessionality, (iii) commercial sustainability, (iv) reinforcing markets, and (v) promoting high social and environmental standards.

From 2007-2017 EBRD financed CI projects with ABI of €40.0bn, with a total project value (TPV) of €148.2bn. From 2007 to early 2016, about €400mn was invested in TC to support CI projects. In recent years, blended finance in the form of investment grants and concessional finance have grown, with USD423mn being sourced from the GCF, and additional funds from agencies such as the EU. Underpinning these arrangements, EBRD has developed an MRV system to identify the environmental component of each project and the amount of climate finance allocated to each component.

## 2.4 Previous Evaluations and Internal Audits

Numerous recent evaluations have identified issues and returned findings directly relevant to the current examination. Key points are summarised below and discussed in greater detail in **Annex 3**. Issues identified consistently were insufficient data on actual results and methodologies to measure performance, the lack of evidence of additionality of subsidies, unstable financial returns from RE, lack of progress in sectors such as transport, and the fragmented nature of climate change responses.

EVD evaluations of SEI1 (2011) and 2 SEFF studies (2015) found:

- Project monitoring and accounting should be based on actual rather than projected data on disbursement, energy savings, and carbon reductions;
- There was no monitoring after projects were finished, and little reporting on policy work;
- Ex post GHG savings were significantly less than ex ante estimates;
- There was limited evidence that SEFFs required financial incentives or linking subsidies and specific market barriers;
- Subsidies were generally not needed for SEFFs for RE, as they were delivered through the Feed in Tariff (FIT) financed by governments; and,
- There were few cases where PFIs continued EE and RE lending outside of the SEFFs.

An OECD evaluation (2016) of environmental lending using credit lines based on SEFF structures found:

- Commercial banks only established environmental credit lines when supported by MDBs and a few continued to offer them once MDB support was withdrawn;
- MDBs could broaden their role by de-risking third party public and private finance, rather than meeting their own lending targets; and
- Country-level analysis was needed to produce country-specific recommendations to improve private sector access to long-term funding for low-carbon investments.

An IFC evaluation (2018) of 10 blended finance projects (mostly climate-related subsidised credit lines) found underutilization as clients saw high risks; only 1 of 10 achieved better than low development outcome ratings, with weak business and private sector development effects.

An EvD Study on Use of Subsidies (2017) found

- The volume of subsidies used by EBRD had increased substantially and there was a lack of evidence on the effectiveness (and efficiency) of most subsidies as it requires counterfactuals to

determine whether the operation might have been implemented as successfully with less or no subsidy.

A 2016 EVD evaluation of multiple wind projects found:

- Most under-performed financially due to tariff structure problems; policy dialogue strengthened outcomes but was largely unplanned and mostly pursued to protect Client and Bank interests.

An Independent Audit Department (IAD report on the SRI (2017) found reporting inaccuracies - projects recorded as completed in the Data Tracking Module (DTM), while SRI benefits had not been achieved, leading to inflated SRI achievements. IAD recommended

- Energy Efficiency and Climate Change (E2C2) team should track all climate finance projects to take account of projects not achieving any expected SRI results and adjust reporting accordingly.
- Environment and Social Department (ESD), with E2C2, could develop specific SRI reporting requirements in the course of the project appraisal/structuring process, and/or include SRI objectives as part of the normal environmental monitoring process.

A GCF review of its Results Management Framework (2018) found a basic lack of guidance on how indicators are defined, when they are measured, and by whom, and how project outcomes are meant to contribute to climate objectives. In many cases project results management frameworks were simply not capable of being evaluated, compounded by:

- staff responsible for preparing projects were not responsible for implementation; there are few incentives to include results management in project design; projects bypassed National Monitoring and Evaluation (M&E) systems, limiting availability of information on performance;
- Many projects lacked credible arrangements for reporting results creating substantial reputation risks for GCF due to over-statement of results; and
- There is no system to allow different stakeholders to view project data and progress in real time.

It was recommended that: GCF prepare guidelines for project indicators and collaborate with other key agencies to harmonize these concepts; define indicators linked with country monitoring indicators and SDG reporting; ensure results management indicators are properly addressed during project preparation; conduct regular evaluability reviews; and develop a web based portfolio management system.

A World Bank evaluation of its work in Carbon Markets (2018) concluded:

- Its carbon finance (CF) models were fragmented, trust funded and project focused activities where the linkage with development goals was not clear;
- There had been success demonstrating the benefits of CF in EE, RE, and reduction in methane and industrial gases, but little progress in the areas of transport, forestry and agriculture;
- Additionality of some CF projects was questionable, and CDM benefits uneven or weak;
- IFC was unable to scale up some relevant CF instruments, and eventually exited the carbon market. There was limited demand for MIGA political risk insurance for CF projects;
- Carbon pricing will not be sufficient to achieve climate mitigation objectives; it needs to be part of programs integrated with CF, and used to attract and leverage private investments.

IEG recommended the World Bank: strengthen coordination of its CF activities, and harmonize results frameworks; increase use of instruments to leverage private sector investment; and strengthen its country focus and identify country specific GHG interventions consistent with NDCs.

### 3. Evaluation of Sustainability Initiatives

#### 3.1 Overview

The CI evaluation is presented in sections: (i) CI Challenges in Context; (ii) Programme Strategy and Objectives; (iii) Structure and Operations; (iv) Portfolio; (v) Performance; and (vi) Conclusions.

#### 3.2 CI Challenges in Context

##### Key Facts and Findings:

- CO2 emissions in EBRD's COOs have been broadly stable;
- The energy sector accounts for about 50% of the sources of CO2 in COOs based on 2010 data;
- EE has improved in all of the COOs, but EEC (Turkey and Ukraine) and CAS (Kazakhstan and Turkmenistan) are still highly inefficient by World standards;
- Risks of water shortages are high in all COOs, and extremely high in parts of CAS and SEMED;
- Materials efficiency does not appear to be a critical issue for most COOs;
- Adaptation indices indicate vulnerability to climate change in COOs is significant, although it is lower than many other regions in the World such as Central Africa; and
- Countries in CAS and SEMED have low levels of capacity to adapt, and they are in the lower 50% of global rankings.

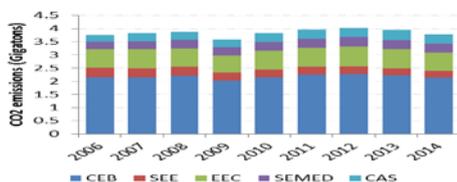
##### 3.2.1 Overview

The CI demand is assessed under the headings of mitigation, water and materials efficiency, and adaptation.

##### 3.2.2 Mitigation

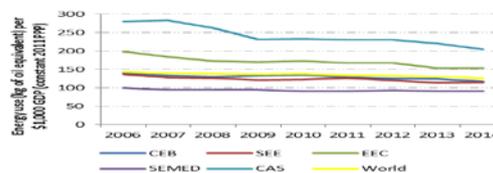
The initial focus of the SEI program from 2006 was reductions in GHG through improvements in EE. World Bank data on CO2 emissions indicates COOs account for about 10% of global emissions and they have been relatively stable in COOs over the period 2006-2014, mainly due to significant increases in EE that has offset growth in GDP, as shown in Figure 7. COO regions<sup>xi</sup> of EEC and CAS are significantly less energy efficient than the World as a whole, but other regions are on a par or better than the global average (Figure 8).

Figure 7: Levels of CO2 Carbon Emissions in COOs 2006-2015



Source: WDI

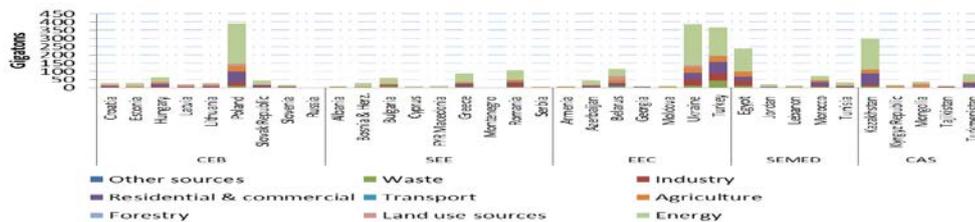
Figure 8: Average Emission Intensity (energy use per unit GDP) 2006-2014



Source: WDI

Figure 9 provides details on the sources and scale of emissions of CO2 in EBRD's COOs in 2010. Russia has been excluded from the analysis as this country alone accounted for almost 50% of emissions in COOs in 2010, making it difficult to discern the level of emissions from other countries.

Figure 9: Sources of CO2 Emissions in EBRD's COOs, 2010

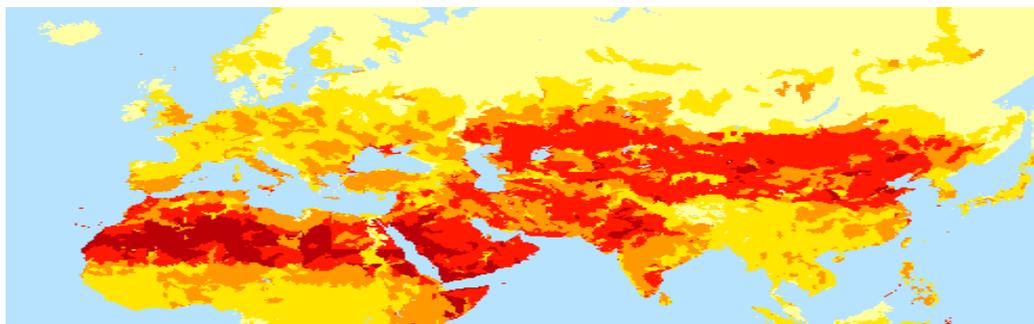


Source: Food and Agriculture Organization of the United Nations (FAO) (2017) <http://www.fao.org/faostat/en/#data/>  
 Sources of emissions were concentrated in a small set of 6 countries (including Russia), and in each case energy dominated, followed by residential and commercial buildings, and industry.

### 3.2.3 Water and Materials Efficiency

SRI broadened the scope of the SEI program in 2013 to include water and materials efficiency. Figure 10 shows the levels of water stress and risk of shortages in the COOs. A significant proportion of CEB, SEE, and EEC are subject to medium to high water risk and CAS and SEMED countries are high risk, and in some cases (parts of Egypt and Morocco) extremely high risk.

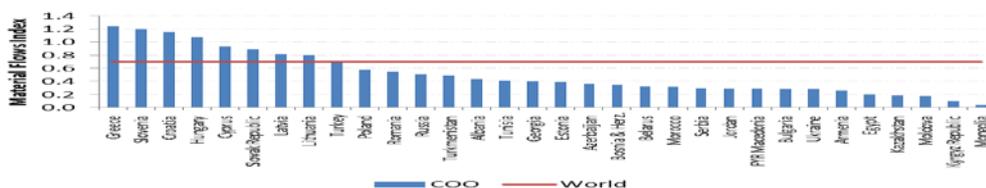
Figure 10: Levels of Water Risk



Source: WRI, Aqueduct, 2014

The level of materials consumption of an economy is closely linked to its level of economic development and reflects the importance of the economic sectors such as agriculture, mining, industry or services. In general, higher levels of wealth lead to higher material consumption. One commonly used measure of material efficiency is domestic material extraction relative to GDP. There is a wide diversity in levels of reliance on material extraction in COOs. It can be seen in Figure 11 that Greece has a relatively high materials dependency, compared to Moldova, which has a low reliance on materials.

Figure 11: Material Productivity of EBRD COOs Economies



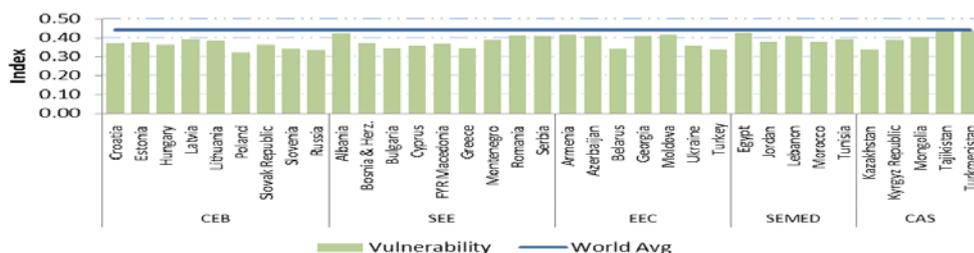
Source: <http://www.materialflows.net>

The global average for the index in 2010 was 0.69, indicating COOs have a relatively low level of reliance on raw materials compared to other countries in the World. From 1980 to 2009 there was an increase in material consumption in absolute terms in most regions of the World. CAS was the exception, as the collapse of the former Soviet Union led to a decrease in material consumption in almost all successor states.<sup>xii</sup> Most of the COOs in CAS are still recovering from this loss of consumption. This result raises a question about the relevance of the raw materials reduction target compared to other CI objectives such as climate mitigation by increasing EE and shifting to low emissions technology such as RE, and strengthening resilience to climate change.

### Adaptation

Adaptation to climate change was piloted in SEI2, but it only started to emerge as a priority under SRI approved in 2013. Adaptation is now 1 of 3 pillars of GET approved in 2015. **Figure 12** presents a vulnerability index prepared by Notre Dame University that ranges from 0-1, with lower numbers indicating reduced levels of vulnerability. The index measures a country's exposure, sensitivity and capacity to adapt to the negative effects of climate change. The global average of the index is 0.44. The results indicate the level of vulnerability of the COOs is relatively uniform, and from a global perspective most of the COOs rank slightly better than this average.

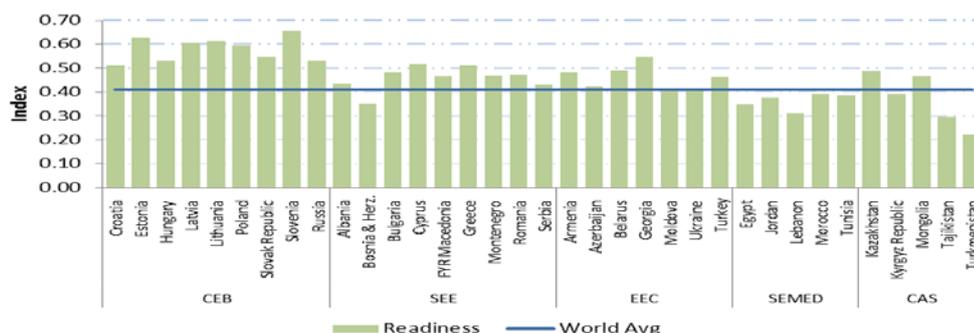
Figure 12: ND Gain - Vulnerability Index



Source: Notre Dame University

**Figure 13** illustrates a readiness index that ranges from 0-1 with higher numbers being preferable. The index measures a country's ability to leverage investments and convert them to adaptation actions. The global average is 0.41, and most COOs in SEMED and CAS are below this figure.

Figure 13: ND Gain – Readiness Index



Source: Notre Dame University

### 3.3 CI Strategy and Objectives

#### Key Facts and Findings:

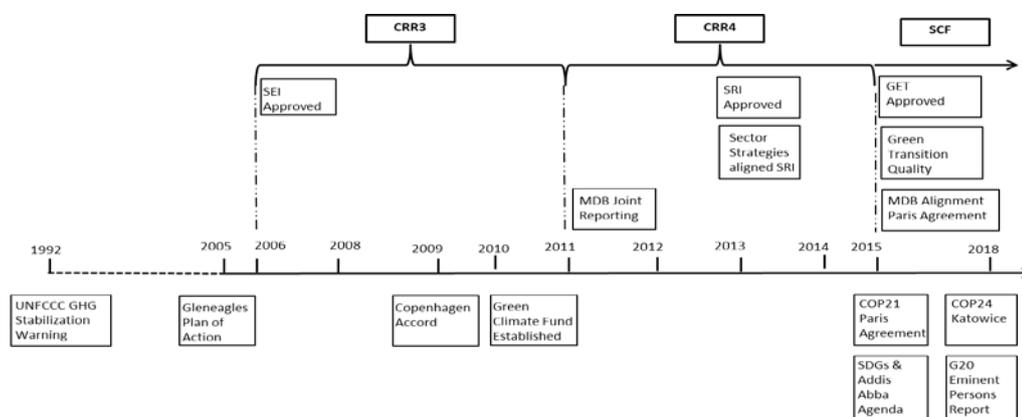
- CI has become an increasingly important priority for EBRD over time;
- The key Board-approved objective for CI has been the mainstreaming and scaling up the levels of CI finance
- The main SEI (2006-2014) objective was avoidance of CO2 emissions to mitigate climate change, and it was pursued initially through EE projects, and over time RE, and then adaptation;
- SRI (2014) was an umbrella facility that encompassed SEI and introduced new objectives for water and raw materials efficiency;
- GET was approved in 2015 just before the Paris Agreement and the SDGs were agreed and it focuses on sustainability, which is a broader concept than climate change;
- GET covers energy, water, and materials efficiency, as well as broader environmental impacts and it was mainstreamed across EBRD, with a target of more than 40% of ABI being allocated to GET projects by 2020;
- In 2017 Green was included as one of EBRD's 6 new transition indicators that are used to prioritise its projects and measure performance.

#### 3.3.1 Overview

EE has always been a priority for EBRD, but the scale of operations increased following the growing international political importance of climate change and the introduction by the G8 in 2005 of the Gleneagles Plan of Action. SEI was approved in 2006 under EBRD's third Capital Resource Review (CRR3) and it introduced several new elements to EBRD's business model: (i) E2C2 was given a cross-departmental mandate to provide technical support and develop financial products for bankers to enable the scaling up and mainstreaming of climate finance; (ii) ensure EBRD's commercial project approach was complimented by targeted TC and policy dialogue; and (iii) introduce performance metrics linked to both Transition Impact (TI) , and physical indicators such as avoided GHGs.

SRI was approved under CRR4 and GET in 2015 under the Strategic Capital Framework (SCF), introducing the target of 40% GET finance as a proportion of ABI. In 2017, EBRD rolled out a new TI performance measurement framework, based on 6 transition indicators, one of which was "Green". In 2018, EBRD updated the SCF with a Strategy Implementation Plan (SIP), which reinforced the importance of green and the need to increase mobilization of private finance.

Figure 14: Strategic Timeline for Climate Change Related Policies and Initiatives



Source: EVD

### 3.3.2 *CI Strategic Framework*

#### (i) Capital Resources Review Frameworks

CRR3 continued the strategic orientation of previous CRRs of moving “East and South” and introduced several initiatives to provide new strategic direction, including SEI. During CRR3 the intensity of reform in the advanced transition countries in CEB had declined following EU accession and in energy producing countries like Russia and Kazakhstan due to high oil prices. The Global Financial Crisis (GFC) had reduced EBRD’s impact at the sector level, as seen in downgrades to the TI potential of the stock of projects. The Global Financial Crisis (GFC) provided an impetus for EBRD to increase its lending operations by almost 60% in 2009. Turkey became a COO in 2008.

CRR4 (2011-2015) highlighted EBRD’s continued commitment to shift operations “East and South” and to leverage private sector investments for low carbon growth. CI was identified as a core priority accounting over time for a quarter of new business. CRR4 had the following objectives:

- Support for EU pre-accession countries to approach EU 2020 targets and inclusion in the EU Emissions Trading Scheme (ETS);
- Sustainable Energy Action Plans (SEAP) and/or Integrated Approaches would be used to guide expansion of SEI in selected countries: EBRD would develop city-based SEAPs
- Adaptation was identified as an important issue in CAS, and it would be pursued across a range of sectors with a number of pilot demonstration projects in water, hydropower and FI sectors supported by multilateral climate finance mechanisms such as the Climate Investment Funds;
- Funding for CI combined with multilateral climate mitigation funding such as Clean Technology Fund (CTF) to promote low-carbon transition, supported by policy dialogue and TC;
- SEFFs would play a key role, broadened to new sectors such as buildings, RE, and SMEs;
- Leverage EU funding for climate change mitigation using structural funds to support new EU member states and pre-accession programmes in the Western Balkans;
- Develop third party bank links to co-finance larger industrial EE and RE projects;
- Pursue opportunities to untie and pool TC and explore cost sharing with beneficiaries; and
- Donor funds would be supplemented with €50mn annually from the SSF and about 40% of these funds would be allocated to climate change.

#### (ii) Strategic and Capital Framework

In 2015 the Board adopted a 5 year Strategic and Capital Framework (SCF) and 3 year Strategy Implementation Plan (SIP) which together set multi-year strategic priorities and delivery plans.

The SCF for 2016-2020 was implemented against a backdrop of significant market and geopolitical uncertainty and the new SDGs that would become effective in 2016. The pace of transition had slowed in many COOs and significant changes in the composition of COOs occurred during CRR4 – SEMED countries joined; operations began in Cyprus and Greece, and were suspended in Russia.

EBRD intended to ramp up activities under SEI, with a strong focus on EE to address climate change and improve competitiveness and energy security and expand the scope of efficiency to water and material waste under SRI. EBRD flagged its intention to only work with untied aid from 2016, and develop fewer and larger thematic and regional multi-donor funds that offered access to both predictable and flexible

funding at scale. It would continue to reform its grant management systems and procedures to bring them into line with its planning and reporting processes.

**Board-approved SIP for 2019-2021 stressed the continuing importance of GET, and the mobilization of private sector finance**, as highlighted in the G20 Eminent Persons Group report on Global Financial Governance. The SIP noted the European Commission's preparations to complement grants with new instruments that leverage private finance. There is an intention to complement traditional co-financing instruments such as B loans and parallel financing with the secondary sale of A loans and the sale of unfunded risk participations (URPs). Donor fund raising will be scaled up to allow blended finance and risk sharing and guarantee products to support increased levels of investment. More than half these funds will be allocated to GET projects.

The SIP supports enhanced policy work aimed at sector reform and institutional and governance improvements, increased privately funded infrastructure, and greater decentralization to Resident Offices (ROs). There will be an increase in sustainable energy and resource efficiency, backed by a **comprehensive program of local currency (LCY) and capital market development**. Activity will be increased in CAS and SEMED regions in line with the needs of the COOs, opportunities, and capacity of EBRD to take advantage of those opportunities.

### 3.3.3 *CI Objectives*

#### (i) *Overview*

Each component of the Bank's CI programme has included targets for performance measurement, a consistent Board priority. However key features have changed substantially over time, the most important being a shift to a sole focus on financing volumes, supported by reports after the fact on projected rather than actual physical outcomes. Most of the CI strategies and supporting indicators focused on mitigation efforts such as estimated EE savings and RE capacity additions rather than adaptation, the approach and metrics for which are being elaborated by the MDBs.

SEI1 integrated the standard dimensions of TI: qualitative changes in the structure and extent of markets; Institutions and policies that support markets; and market-supporting behaviours, skills and innovation. SEI Phases 2 and 3 (2009-2014) took a major step forward by supplementing these qualitative TI indicators with quantitative ex ante targets for physical outcomes for the net volume of carbon emissions avoided relative to a baseline. Under the SRI (2013-2015) and GET (2015), the SEI qualitative objectives were carried over, but the quantitative climate change targets were dropped, and replaced with targets on volumes of EBRD and private sector finance, and reports on ex ante net quantitative achievements. The "Green" transition quality was formally defined as one of 6 qualities in a new TI results framework approved in 2017.

#### (ii) *CI Targets*

##### *SEI Targets*

**SEI1 (2006-2008) focused on EE and GHG mitigation** and set an ABI 3 year target of €1.5bn, for a TPV of €5bn (ie 70% co-financing). Grant funds of €100M would be mobilised from donors to scale up public and private financing.

**SEI2 (2009-2011) continued to focus on mitigation and indicated EBRD would develop competencies in the areas of EE, RE and carbon markets.** 3-year targets were:

- SEI target financing of €3 - 5bn and Total Project Value (TPV) of €9 -15bn (ie 67% co-financing); and
- **carbon reduction** of 25 - 35mn tonnes of CO2 (8.3-11.7mnt/pa).

Given the GFC, the level of private sector co-financing was expected to fall. The importance of grant funds was expected to rise further and mobilisation targets were set at €100mn for TC and €250mn for blended non-TC investment grants and concessional loan finance.

**SEI3 (2012-2014) broadened the CI scope to include adaptation and set the following targets:**

- EBRD financing of €4.5 - 6.5bn with a target TPV range of €15 - 25bn (ie 67-70% co-financing); and
- **carbon reduction** of 26 - 32mn tonnes CO2 ( 8.7-10.7 mt/pa).

### *SRI Targets*

**SRI (2013-2015) was structured as an ‘umbrella’ initiative** comprised of 3 components:

- the existing SEI along with its established targets;
- a water efficiency component focused on demand-side water management; and
- a materials efficiency component targeting waste minimization.

An MRV methodology was developed in 2013 that was integrated with EBRD’s existing TI measurement systems and it was operationalised in 2015.

### *GET Targets*

**GET set targets over the 5 year SCF period (2016-2020), which corresponded to:**

- Financing of up to €20bn (ie €5bn pa); GET ABI to reach **40% of total ABI by 2020**.
- GET would mobilise another €70bn for a TPV of up to €90bn (ie 78% co-financing); and
- **50-66% of GET co-financing was expected to be sourced from the private sector.**

Physical climate change targets under SEI and SRI were discarded, although data continues to be collected on ex ante physical climate change estimates (net of baselines) and reported in the Sustainability and Joint MDB Climate Finance Reports.

### *Instruments to Operationalise Targets*

As discussed in **Annex 4**, the CI targets were operationalised through policies such as the ESP, sector strategies, and country strategies. **Annexes 5-7** profile how the CI initiatives were rolled out in Egypt, Kazakhstan and Ukraine.

### 3.4 CI Structure and Operations

#### Key Facts and Findings:

- Banking takes the lead identifying market opportunities and managing project opportunities;
- Economic, Policy and Government (EPG) identifies the level of TI impact of projects and it has developed a methodology to define Green TI targets that are included in corporate scorecards to incentivise staff;
- ESD chairs a GET clearing house established in 2016 to review and approve ex ante estimates of projects eligible for GET Finance;
- E2C2 supports banking operations in project origination, policy advice and the development of financial products that meet EBRD's strategic CI objectives, and supports Department of Finance (DCF) mobilise climate finance;
- GET financing shares in projects are identified by E2C2 using a defined methodology and assessments are verified by ESD and EPG through a GET Clearing House;
- MRV accounting and reporting procedures have been established that reflect harmonised standards of the MDBs;
- MRV framework for CI data is limited to ex ante estimates of net savings, with no reported baselines, or verifiable actual data on ex post GHG reduction results;
- The Bank has some capacity and collects ex-post data for about a fifth of projects (covering selected projects with the most significant GHG reduction impact), but there is no comprehensive assessment across the full portfolio.
- ESD collects ex post data for projects that emit more than 25,000 tonnes of CO<sub>2</sub>-equivalent pa that is included in EBRD's annual Sustainability Report on an aggregated basis, but these figures are collected independent of CI data and are not compared to original ex ante estimates of physical climate impacts;
- Ex post data of physical climate impacts is collected by Banking that is reported to EPG, and used as a basis to assess current expected TI, but similar to ESD data, it is not compared to original ex ante estimates

#### 3.4.1 Organization Structure and Staff

**Banking Department's Operations Leaders (OLs) are responsible for originating, structuring and executing CI financial transactions, and it has created dedicated positions for GET bankers.** Following the launch of SEI 2 bankers were hired in Financial Institutions (FI) to support increased SEFF activity; and additional resources were hired to: (i) reinforce GEFF administration and grant processing, (ii) focus sector teams on GET delivery (GET bankers in Transport and Municipal Environmental Infrastructure (MEI)); and (iii) scale-up activity in the key regions (GET bankers were hired for SEMED, CAS, and Western Balkans). In addition, some sector bankers are predominantly working on GET investments even though they are not designated as dedicated GET bankers. For example, Power and Energy (P&E) is primarily financing RE on the energy generation side, although they are not formally classified as GET bankers.

**In addition to Banking,** the following departments are actively engaged in the development and implementation of climate initiatives and staff specialise to varying degrees in GET related projects:

- **ESD**, which is the custodian of EBRD's ESP and its Performance Requirements, it chairs the **GET Clearing House** that screens projects proposed by Banking that may be eligible for GET finance, and it prepares EBRD's annual Sustainability Report;
- **EPG** policy teams under Vice-President Policy and Partnerships (VP3), which leads the preparation and monitoring of country strategies, identifies Green TIs, and it supports ESD in the GET Clearing House;
- **E2C2**, which provides support to banking to mobilise concessional climate finance and assist in

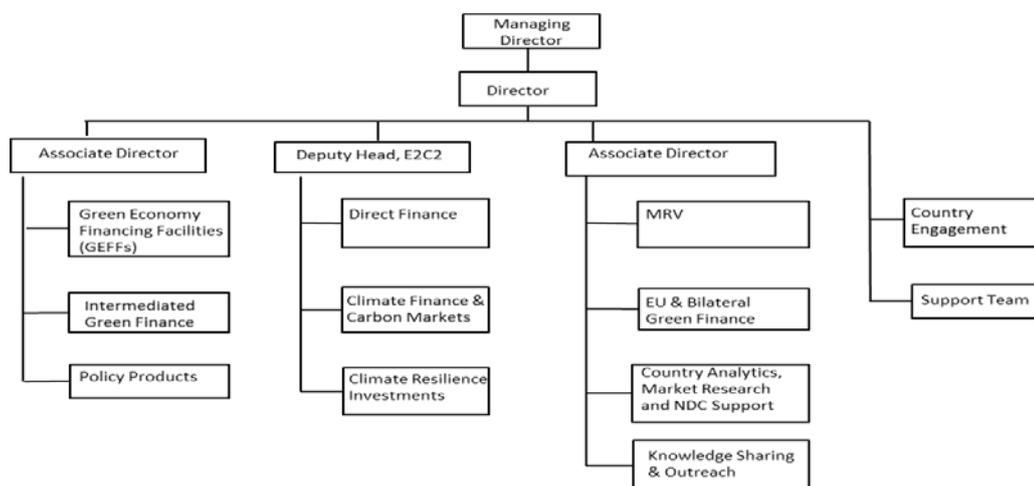
the strengthening of the policy and regulatory environment, origination and design of projects, it supports ESD in the GET Clearing House, it supports DCF to mobilise and manage concessional climate finance, and it leads the preparation of the Joint Report on MDBs' Climate Finance;

- **Office of the General Counsel** through its Legal Transition Team (LTT) for legislation for RE and EE in residential and public buildings and for legal support to the Multilateral Carbon Credit Fund (MCCF)<sup>xiii</sup>;
- **DCF** for the development and implementation of the CI funding strategy;
- **Treasury** for Environmental Sustainability Bond Programme (ESBP) issuance activity; and
- **Procurement Operations and Delivery Department (PODD)** to support procurement and administration process for the implementation of TC assignments.

All of these departments have recruited additional staff to support the CIs. Currently, there are an estimated 49 positions directly focused on GET across the Bank, in addition to staff within E2C2.

E2C2 sits within Banking and it provides support to identify and appraise CI project components with EBRD commercial and non-commercial financing. EBRD finance for CI projects is blended with non-commercial co-finance sourced from third parties such as the climate funds, primarily to improve affordability to end users. E2C2's organization structure (Figure 15) reflects a combination of support for: (i) direct and intermediated EBRD lending operations; (ii) fund raising activities with the international climate funds and EU and other bilateral donors; (iii) policy dialogue related activities, country analytics, knowledge sharing and MRV; and, (iv) country engagement in the ROs; and (vi) support functions.

Figure 15: E2C2 Organization Structure



Source: E2C2

E2C2's organization structure highlights the close linkage between policy and direct and intermediated finance, and MRV and country analytics with fund raising. E2C2 has a network of local staff in ROs in Kyrgyzstan, Russia, Serbia, Turkey and Ukraine that acts as regional hubs and support neighbouring countries. Reflecting the strategic priority of CI and growing levels of activity, E2C2 staff numbers increased from 18 EBRD professional staff in 2008 to 57 permanent staff in 2019, (plus 14 staff externally funded by donors). Funding for the external positions has been sourced from bilateral agencies; and multilateral funds such as CTF, GEF, and the MCCF.

The CI projects make extensive use of external consultants financed with concessional funds. E2C2 takes the lead on the recruitment and management of consultants to prepare energy and resource audits to identify both technical solutions and the financial benefits of investing in sustainable energy and resources, and implement, together with banking, programs such as the EBRD Green Cities and the underlying Green City Action Plans (GCAPs). E2C2 provides specialist advice on CI matters in areas such as fund raising, preparation of Terms of Reference (TORs), and policy dialogue to enable the creation and implementation of project pipelines for Banking. Under SEI, framework contracts were an important modality for recruiting consultants, but it has declined in importance, at least in E2C2, as the scope of CI has broadened over time. As a result, direct procurement of specialists has become increasingly common.

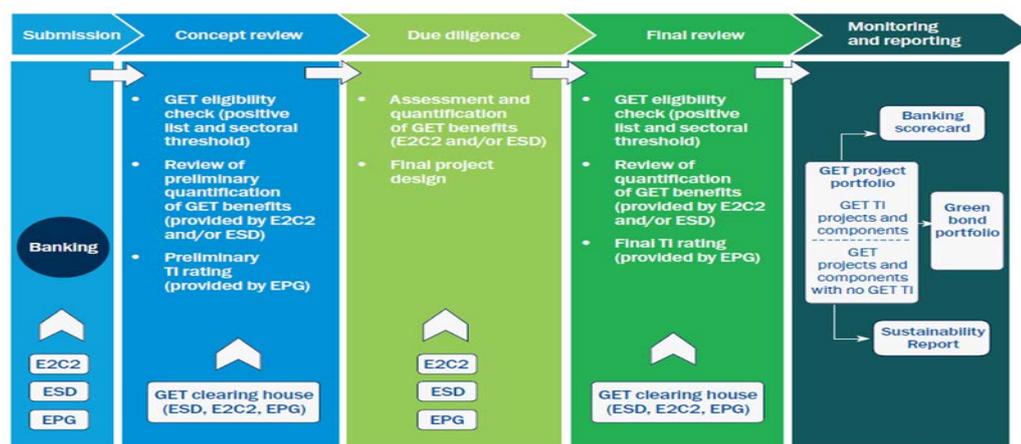
### 3.4.2 CI Project Preparation and Performance Monitoring

#### (i) Overview

The CI project preparation methodology provides staff with incentives to help ensure the GET 40% ABI target is achieved, while providing checks to ensure projects are properly classified as GET. The GET classification is important as it determines the amount of third party concessional finance used to develop GET projects. GET project preparation is based on a 8 stage process where: (i) GET project is identified; (ii) GET eligibility is checked; (iii) GET sectoral threshold is checked; (iv) Expected Transition Impact (ETI) is identified, based on expected net environmental benefits; (v) potential GET financing contribution is identified; (vi) GET financing contribution is subject to due diligence; (vii) Expected GET contribution is verified by the Clearing House; and (viii) monitoring and reporting on project implementation is initiated.

The stages of the GET project preparation and performance monitoring process are shown in Figure 16. The clearing house and the new TI, GET, and ESP guidelines and definition of the GET operational process are designed to help streamline the attribution and accounting of CI finance and related impacts and reduce risks of greenwashing, which was flagged as an issue by IAD in its review in March 2015.

Figure 16: GET process for project definition, quantification and assessment



Source: GET Handbook

#### (ii) Transition Impact

A detailed GET TI methodology has been developed by EPG to quantify ETI. Green projects are rated in a number of ways, which can be: (i) GET direct track rating; (ii) green as a primary TI quality; or

(iii) green as a secondary TI quality. Contribution to GET is assessed through quantification of the use of proceeds ('GET Share') channelled towards the GET activities and approved by the GET Clearing House..

Projects' GET share needs to exceed a defined threshold to be eligible for applying either the GET direct track rating approach or a two TI quality rating approach.. Lower thresholds reflect the situation that it is more difficult to develop GET projects in some" sectors, which are needed to advance a green economy. GET direct track thresholds are: (i)  $\geq 60\%$  for traditional infrastructure and FI; (ii)  $\geq 50\%$  for manufacturing and services; and (iii)  $\geq 35\%$  for sectors such as agriculture, natural resources, property and tourism and information and communication technology. Additional ETI can be derived from supporting activities such as policy dialogue, green innovation, and the scale of green impact.

EPG assigns an "Assessment of Transition Qualities" (ATQ) rating for each quality in the TI rating methodology. The ATQ adjustments apply at a country level, reflecting the development context of each of our CoOs. These ATQ adjustments provide an input to the calculation of ETI at the project level. **ATQ is based on the gap in qualities such as "Green" in a COO and a weighted average of a normalised set of pre-determined indicators from a group of countries in an advanced stage of transition.**

Within this TI framework, an individual project ETI is calculated by weighting a raw ETI score by the ATQs. The ETI forms part of the Corporate Scorecards, and EBRD's Annual Report. The ETI methodology is embedded in the automated rating Transition Objectives Measurement System ("TOMS") . Monitoring indicators and benchmarks are set for each project and inputs are provided by OIs using a compendium of standardized indicators. The Compendium was developed in 2017 and it is a catalogue of indicators (output, outcome, and impact) that is harmonised across the Bank and organised by the 6 transition qualities.

### (iii) *GET Finance*

In 2017 E2C2 developed a "GET Handbook" based on Joint MDB guidelines that provides details on the methodology for defining GET finance and GET indicators. In May 2018 the Handbook was further elaborated in an external "Technical Guide for Consultants on Implementing the EBRD Green Economy Transition". The GET guidelines codify the GET classifications (mitigation, adaptation, other environmental category), the principles for calculating the proportion of GET financing, and the expected (ex-ante) net physical sustainability outcomes from a project. The handbook is based on: (i) GET principles approved by the Board; (ii) a joint MDB methodology for climate finance accounting, monitoring and reporting; (iii) other internationally recognized standards such as Green Bond Principles issued by International Capital Markets Association; and (iv) EBRD's ESP and its Performance Requirements.

An activity qualifies as **climate change mitigation** if it contributes to: (i) reducing GHG emissions into the atmosphere, or (ii) sequesters GHG emissions from the atmosphere. An activity qualifies as **climate change adaptation** if its intention is to reduce the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, by maintaining or increasing adaptive capacity and resilience. An activity is considered to have **other environmental benefits** if it results in a materially positive environmental outcome that is not primarily climate change mitigation or climate change adaptation such as sustainable and efficient water use and wastewater management. **Net GET affects are calculated by estimating gross environmental benefits, less the base line, for a representative operational year.**

The GET financing attributable to a qualifying CI project is based on an estimate by the project consultant or project engineer (in either the Country/Sector team or E2C2) of how the whole project will perform after it is implemented. Annual project GHG emissions (gross GHG emissions)

and the change in emissions brought about by a project (net GHG emissions) are generally calculated for the whole project, and they are not pro-rated for EBRD's financial involvement. The initial CI data estimates and underlying assumptions are initially assessed for reasonableness by EPG, ESD, and E2C2, and then verified by the Clearing House.

**There are no procedures in place, and no evidence of project designs that include control groups, or some other form of counterfactual, that can be used to demonstrate additionality of concessional finance allocated to GET projects.**

### *(iii) Monitoring and Reporting*

#### **- Transition Impact**

Projects are reviewed by EPG each year through Country Strategy Delivery Reviews to determine the degree of implementation of project activities. ETI is updated and they provide the basis for calculating a Portfolio TI (PTI) rating that reflects changes in the year-on-year movement of the average ETI of all projects in EBRD's project portfolio. PTI is recorded in the Transition Impact Monitoring System (TIMS) and the TCRS, which are used for annual reporting and the assessment of scorecards.

#### **- GET Finance**

There are 2 internal processes in place for monitoring the active GET portfolio:

- 1) **Quarterly assessments of expected CO2 savings** of projects in the active GET portfolio. The focus is on larger projects, and it is based on desk work together with ESD; and
- 2) **Quarterly assessments of EBRD's Green Bond portfolio**, which is based on a subset of GET projects, to verify if projects continue to qualify with the Green Bond Criteria. Studies are based on desk work together with ESD and Treasury.

**E2C2 manually collects the ex ante board approval data from OLs that is entered into dedicated databases** (spreadsheets), categorised by financial instrument. This data provides the basis for managing payments to beneficiaries and consultants, and reporting on the level of EBRD's activity in each area covered by the CI program. The CI databases provide information to individual banking teams for results management purposes and the annual joint MDB climate finance report, EBRD's publicly available Sustainability Report prepared by ESD, regular GET updates for Board members, and reports to donors of concessional finance and EBRD green bond financiers.

### *(iv) Verification*

**When considering verification of the data on GHG emissions and other resource savings, it is important to differentiate between ex ante Board estimates, and ex post actual results.**

#### **- Ex Ante**

**Following approval of GET in 2015 EBRD established a GET Clearing House where Banking OLs are required to make presentations to representatives of ESD, EPG and E2C2, on the rationale for why projects are eligible for classification as GET financing.** Following initial approval of a project concept, OLs are required to conduct due diligence, with support from E2C2, to confirm the level of environmental benefits and GET financing. The due diligence findings are subject to verification in a second Clearing House meeting by ESD, EPG and E2C2, before the OL submits the project to Opscom and the Board for approval. Following Board approval, the project becomes eligible for concessional

---

climate finance,. Eligible projects with a minimum of 90% GET finance share are included in EBRD's Green Bond Portfolio, which is funded by Treasury through the issuance of green bonds under the ESBP.

**Ex ante estimates of project data are filed in EBRD's DTM and retrieved using EBRD's Business Performance Navigator (BPN) reporting system.** CI data is collected by E2C2 on parameters such as expected net carbon emission reduction, RE production, energy and water savings, waste reduction, and various financial parameters. The CI data for projects directly financed by EBRD is collated by E2C2 prior to loan approval by the Board, and the initial estimates of net resource savings are included in the CI database and they are not changed post Board approval.

**The process for collecting CI data on SEFFs/GEFFs is slightly different** as E2C2 prepares estimates at the time of Board approval of expected savings in advance of any financing being signed with a partner bank under GEFF framework, generally on the basis of market studies and experience with previous SEFFs/GEFFs. These ex ante estimates and the CI database are then updated by the project consultants based on the expected savings from actual sub-projects financed by the relevant PFI. Project completion in accordance with the original project specification is reviewed by independent verification consultants, who approve payments of investment grants (if applicable) to project sponsors and pass the information back to Banking Departments and E2C2 via the SAP system.

- **Ex Post**

**There is no comprehensive process in place to verify the CI estimates of GHG reductions and other resource savings approved by the Board with ex post data within EBRD.** Donors have authority to conduct independent reviews of projects they have financed, but the scope of these reviews is limited to mid-term reviews of volumes of expected GHG reductions based on the original ex ante estimates. Portfolio managers collect actual ex post data of GHG emissions, and it is entered into the Project Monitoring Module (PMM). Initially, this data is recorded by Portfolio Managers in ROs in text format, and it is manually re-entered into TIMs at HQ. EPG reviews the data at the project level and it provides an input into the PTI calculations. In a parallel system, ESD manually collects actual ex post results for projects that emit more than 25,000 tonnes of CO<sub>2</sub>-equivalent pa and this data is included in EBRD's annual Sustainability Report in the form of ex post aggregated net emissions.

**Because there is no comprehensive process requiring the Bank to collect ex post actual (verified) data on GHG emissions and other impacts it is not entered into the CI databases or formally compared with the original ex ante estimates for impact verification purposes** and provide a basis to update future estimates. E2C2 and ESD sample selected projects to verify estimates with actual results, but there is no process in place to report on these results, and the results are not published. E2C2 is involved in the ESD process of collecting ex post data, which is referred to as "post signing" data analysis. **As "post signing" refers to an event, rather than the underlying type of data collected, it is not clear whether the data analysed is annual, cumulative, committed, disbursed, cash or accrued expenditure.** Irrespective of the definition, ex ante estimates are not validated with ex post data and reported to the Board, or the donors.

### 3.5 CI Portfolio

#### Key Facts:

- Mobilization of commercial finance is the primary focus of the CI program, being sourced from EBRD's balance sheet and third party co-financiers;
- GET ABI financing has grown rapidly as a proportion of EBRD's total ABI, reaching 43% in 2017;
- Most GET ABI finance over the evaluation period was allocated to industrial EE, and MEI EE;
- Turkey has been the main recipient of GET ABI, although recently SEMED has become more important, driven by RE projects in Egypt;
- Private sector clients on the demand side has been falling, representing 50% of GET ABI in 2017, and this result is probably due to the lack of progress establishing private carbon markets;
- Most ABI financing has been provided in the form of foreign currency (FCY) debt;
- There are conflicting definitions of co-finance, but evidence indicates that levels from the private and public sector have been rising in recent years, although amounts are not large when compared to ABI;
- Concessional public co-finance is an important feature of the CI program, and it makes intensive use of TC grants and blended Non-TC grants, debt, equity and guarantees;
- Quality of data on concessional co-finance is poor: data on CI TCs at project level has not been available in TCRS since early 2016, data on Non-TC CI finance is only available from 2014 onwards, and data is categorised by type of financial instrument, rather than outputs at the program and project level, making it difficult to determine unit costs of GHGs avoided;
- The size of EBRD's committed concessional donor financing portfolio has risen from €326mn in 2013 to €876mn in 2017, with 35% going to "Green" projects in 2017;
- GCF was the main source of Non-TC funds in 2017, committing €423mn (50%), primarily in the form of concessional loan finance, and the EU was the main source of TC grants (70%).

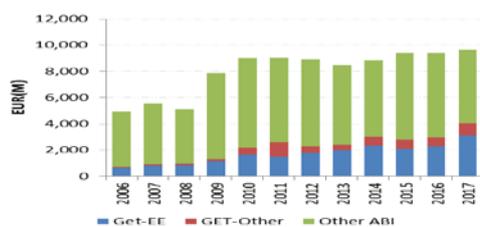
The CI databases differentiate between the following types of finance: (i) ABI (mainly commercial loans), (ii) commercial co-financing (mainly loans); (iii) Non-TC (mainly grants and concessional loans); and (iv) TC (grants). The quality of the data on ABI is of a high standard. E2C2 has assigned a high priority to output categorization of ABI, and data collection and reporting on results since 2014. As a result, there is an unusually large amount of data being collected on the level of ABI allocated to various outputs and ex ante estimates of net avoided GHGs and resource savings, relative to other EBRD programs. In comparison the quality of CI data on commercial co-financing and concessional finance is poor due to weaknesses in EBRD's Management Information System (MIS), and the way the databases are structured, based on financing instruments, rather than classifying funds by outputs, country, program and project.

The CI databases are quite detailed at the variable level, but data on concessional CI facilities at the project level is inconsistent, difficult to interpret and does not reconcile with the DCF Annual Reports. Critical information on cost of GHGs avoided, particularly in regard to concessional finance, and details on volume of finance from public and private sources, relative to total project finance, is missing. Metrics for adaptation in the CI database are limited to the number of projects, associated water savings, and finance volumes (tracked since 2011). Further difficulties arise as banking departments such as FI and MEI have access to their own sources of concessional finance, and these funds are not included in the CI databases. All data is reported on an ex ante Board approval basis, so it does not take into account factors such as cancellations, delays in disbursements, or changes in scope. There is no data available in the CI Database on targets, baselines, and ex post results that can be used to validate the accuracy of ex ante estimates and inform future decisions through a "learning by doing" process to improve actual performance.

### 3.5.1 EBRD Commercial Financing

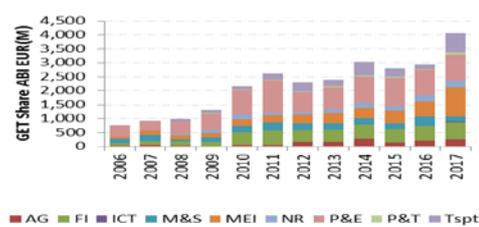
Mobilization of ABI has been the primary objective of the CIs. ABI with GET finance (GET ABI) accounted for 43% of the ABI portfolio in 2017 and GET finance accounted for 67% of GET ABI. EBRD's direct financing of GET projects was diverse and 1,382 were approved from 2006-2017. As shown in Figure 17 GET financing volumes grew significantly from 2006-2017. Figure 18 indicates most GET ABI lending was mobilised by P&E, MEI and FI.

Figure 17: EBRD ABI over Time



Source: CI ABI Database

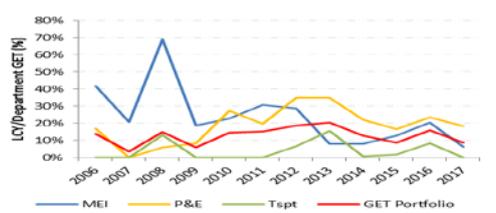
Figure 18: GET ABI Financing by Department



Source: CI ABI Database

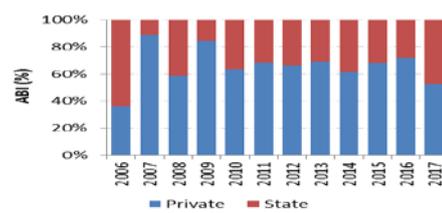
Turkey was the most important region for GET ABI, although SEMED has increased in significance in recent years, driven by RE projects in Egypt. This finance was almost exclusively structured as bank debt, and there were few investments in equity. A review of ex post financial data of GET projects held on the BPN system showed the cancellation rate for GET projects was 4%. GET financing was primarily denominated in foreign currency (FCY), with LCY falling to 8.7% of GET ABI in 2017. Figure 19 shows P&E was the largest provider of LCY, although it was less than 20% of its financing in 2017. Figure 20 indicates on the demand side private sector clients for CI projects as a proportion of ABI has been falling and it now accounts for about 50% of ABI. This result is probably due to the lack of progress establishing carbon markets, which would provide private clients with greater incentives to invest in GET projects.

Figure 19: LCY % Dept. GET ABI Portfolio



Source: Business Navigator

Figure 20: Private Sector Clients % GET ABI



Source: CI ABI Database

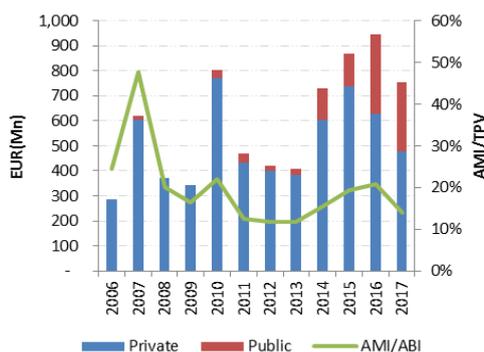
### 3.5.2 Commercial Co-Financing

It is difficult to measure the level of co-financing allocated to projects, as project scopes, scale, and sources of finance change over time. Traditionally, co-finance has been measured using Annual mobilization investment (AMI), which is primarily comprised of syndications of B loans, and public sector funds managed by EBRD on behalf of agencies such as the climate funds. Figure 21 shows that AMI has been increasing, particularly in relation to external public sector funds, although the amounts are small relative to ABI.

In 2015 the MDBs agreed in Addis Ababa they would increase private sector co-finance by 25-35% by 2020. Reflecting this undertaking, GET included an objective where 50-66% of GET co-financing would

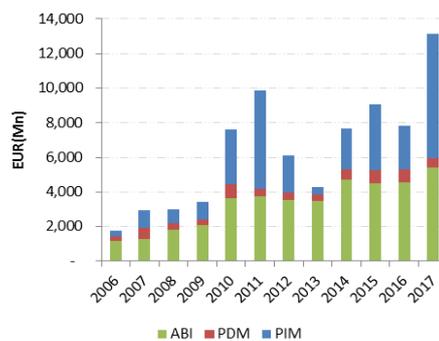
be sourced from the private sector. A joint MDB task force agreed to a common definition of private co-financing/mobilisation in a report issued in June 2018<sup>xiv</sup>, which consists of two components: (i) Private Direct Mobilization (PDM); and (ii) Private Indirect Mobilisation (PIM). PDM refers to private financing due to the direct involvement of an MDB, whereas PIM is private commercial financing provided in connection with a specific activity for which an MDB is providing financing. Figure 22 shows ABI, PDM and PIM for GET funds. Relative to ABI, PDM is low, and PIM has been very volatile.

Figure 21: GET AMI



Source: Business Navigator

Figure 22: GET Private Finance



Source: Business Navigator

Similar to other MDBs, EBRD does not calculate direct and indirect public sector finance. It is difficult to determine what proportion of co-financing is sourced from the public sector, as it is primarily determined by the way the project is structured, and does, or does not benefit from a sovereign guarantee. Further complexity arises as indirect financing is not actively monitored by bankers as it is not under their control.

### 3.5.3 EBRD Green Bond Funding

EBRD established the ESBP to fund its Green Project Portfolio. The ESBP started operations in 2010 and by December 2017 66 bonds had been issued, with a total outstanding value of €1.98bn. The bonds were denominated in USD (69%), € (24%), and Indian Rupee (7%). These instruments were used to finance operating assets for EE (48%), RE (25%), Environmental Services and Transport (15%), and Water Management (11%). Turkey and Poland accounted for 51% of the operating assets.

### 3.5.4 Concessional Co-financing

#### (i) Overview

The amount of co-financed public funds managed by EBRD to address climate change has started to grow in recent years. EBRD differentiates concessional co-financing between Non-TC (blended) and TC grants (which are disaggregated into non-transactional and transactional). Non TC is categorised as transactional subsidies and can be structured as unfunded guarantees, or funded debt, equity or grants.

EBRD has been shifting towards a more programmatic use of concessional donor funds by establishing multi-donor funds, and in 2017 they accounted for 44% of bilateral donor contributions. In 2017 "Green" contributions accounted for about 35% of grants, and most of the Non TC was derived from contributions from the GCF. Increasingly, donor funds are being allocated to multi-country programs.

DCF's Annual Grant Co-financing Report for 2017 indicated that donor funds in total grew from €326mn in 2013 to €876mn in 2017. About 40% of EBRD's active portfolio by number benefited from

concessional funds in 2017. From a geographic perspective the Early Transition Countries (ETC) and SEMED regions received an outsized share of these funds as they were the least advanced in transition, have the **highest affordability constraints**, and greatest needs for EE improvements.

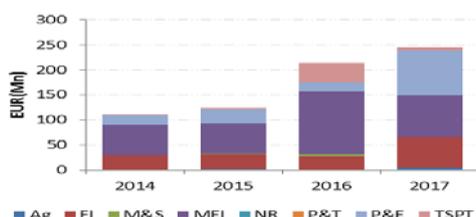
(ii) Non-TC Co-financing

E2C2 established the CI Non-TC database in 2014, and the volumes of project signings recorded were about 3% of GET ABI over the period 2014-2017. Project signings are substantially less than the amounts reported by DCF for “green activities”, being about 25% of donor commitments in 2017. Non TC co-financing accounted for 60% of total concessional co-financing in 2014-2017. Non-TC funds are classified as: (i) investment grants; (ii) incentive payments; and (iii) concessional loans. Non-TC funds are used to mitigate **externalities**, market barriers, the **risk** associated with innovative activities, and/or address **affordability** constraints. Total non-TC funding included in the CI database was €690mn from 2014-2017, and it was equivalent to 29% of EBRD’s average ABI for each CI project.

Figure 23 highlights the dominance of MEI as the largest user of CI Non-TC funds, followed by FI and then P&E. Figure 24 shows the growing importance over time of Climate Funds such as the GCF, relative to the EU and SSF as sources of Non-TC co-finance. GCF was the main source of Non-TC funding in 2017, committing €423mn<sup>xv</sup>, mainly in the form of concessional loans. These loans may be used for filling funding gaps, or they can have concessional elements in parameters such as pricing and tenor.

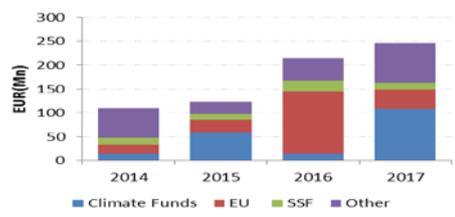
EU was the largest **grant donor** to the CI Non-TC portfolio, providing €313mn in 2017. EU funds were allocated through facilities such as the Western Balkans Investment Framework (WBIF), the Neighbourhood Investment Facility (NIF) and the Investment Facility for Central Asia (IFCA). EU Structural Funds offer co-financing opportunities for climate change mitigation, and they are looking at scaling up the use of first loss guarantee facilities managed by EBRD. SSF contributed €29mn to GET in 2017, of which €11.3mn was classified as Non-TC GET finance.

Figure 23: GET Non-TC Finance by Department



Source: CI Non TC Database

Figure 24: GET Non-TC Finance by Source

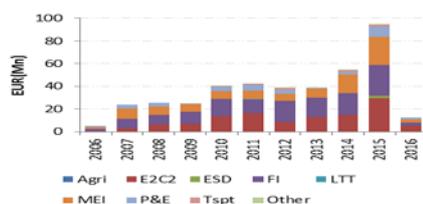


Source: CI Non TC Database

(iii) TC Grants

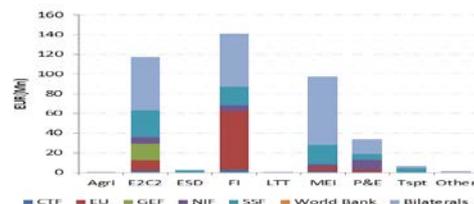
CI data on TC grants is only available for the period 2006-2015, plus part of 2016 due to problems with EBRD’s MIS. CI TC grew rapidly from 2006 and reached more than €90mn in 2015 (Figure 25). Most of the CI TC funds were allocated to E2C2 (where they were managed on behalf of sector teams), FI and MEI (Figure 26). The TC grants were sourced from bilateral agencies and the EU, followed by EBRD’s SSF.

Figure 25: TC Funds by Department



Source: CI TC Database

Figure 26: TC Funds by Department and Source



Source: CI TC Database

### 3.6 CI Performance

This section reviews CI performance under the following headings: (i) outputs; (ii) outcomes; (iii) impacts; and (iv) financial performance.

#### Key Findings:

- All of the CI financing targets were met or exceeded;
- CI emissions results exceeded targets where specified, but tended to be at the low end of EBRD expectations;
- There were no targets set in Board documents to measure improvements in adaptation, but the number of projects and associated water savings are being tracked;
- Industrial EE accounted for about 28% of the ABI portfolio, followed by Cleaner Energy Production, the share of which has been declining and replaced by MEI EE projects;
- RE and SEFFs account for a relatively small amount of the ABI portfolio (16-18% each);
- MEI EE is by far the largest user of Non-TC, mainly in the form of investment grants that were used in the EEC and CAS regions (mainly Kyrgyzstan and Ukraine);
- SEFFs are the main users of investment grants and they were more common in the EEC;
- RE is the main user of loans provided by GCF and CTF, mainly in Egypt and to a lesser extent Kazakhstan;
- TC is mainly allocated to project preparation for SEFFs and MEI EE, and while there is a lack of data from the end of 2015, it is reported there was an increased emphasis on using TC for policy advice from SEI3, and since 2009 more than 330 policy assignments were implemented;
- The levels of GHG avoided due to EBRD support are declining over time, due to factors such as the Board decision to stop cleaning coal power stations in 2014, and the exit from Russia;
- The amount of GHG savings/€ of GET ABI and Non TC has been declining, although there was a slight increase in 2017;
- RE, followed by Industrial EE, were almost 3 times more effective than SEFFs and MEI EE outputs at reducing GHG emissions on the basis of unit costs of Non TC;

#### 3.6.1 Outputs

##### (i) Overview

The CI program did not specify output targets, and financing volumes were presented as the primary targets in Board documents to measure performance. All of the ABI targets were met or exceeded, where defined:

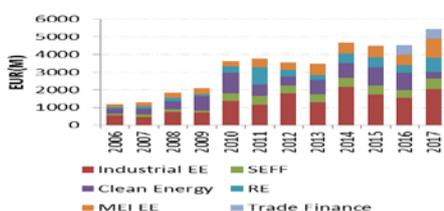
- SEI1 mobilised €2.7bn, against a target ABI range of €1.5 - 5bn, for 2006-2008;
- SEI2 achieved €6.1bn, against a target ABI range of €3 - 5 bn, for 2009-2011;
- SEI3 achieved €7.7bn, against a target ABI range of €4.5 – 6.5bn, for 2012-2014;
- SRI did not specify ABI targets; and
- GET financing of 43% ABI was achieved in 2017, against a target of 40% by 2020.

In addition to ABI, EBRD mobilised external co-finance from private and public sources, including Non-TC and TC to support the achievement of EBRD's lending targets and the attainment of climate change objectives. The CI database identifies 7 types of outputs that are used to classify the financial allocations of concessional and commercial CI funds: (i) Industrial EE (includes projects in Industry, Commerce and Agribusiness; ICT; Property and Tourism; Transport); (ii) SEFFs; (iii) Cleaner Energy Supply; (iv) RE; (v) MEI EE (includes a range of projects with relevance to climate mitigation, adaptation and environmental impacts including water supply and waste water treatment, district heating, urban transport, etc.); (vi) Carbon Market Development; and (vii) Trade Facilitation Program (TFP). Under the CI program, there are a large number of special-purpose concessional funds managed by E2C2 and Frameworks managed by Banking Department that can draw upon some or all of these types of finance for intermediated and directly financed projects.

**(ii) Annual Banking Investment**

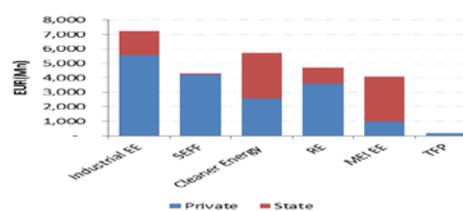
GET ABI increased more than 400% over 2006-2017, and accounted for 43% of Bank ABI in 2017. GET finance as a proportion of GET ABI ranged from 64% in 2006 to 75% in 2017. Figure 28 shows the importance of private sector finance, and the average share of GET finance commitments was 61% over the period 2014-2018. Figures 27 and 28 highlight the dominance of direct lending for Industrial EE (28% of the portfolio). Cleaner Energy has been an important source of lending, but volumes contracted following the decision by the Board in the 2014 Energy Sector Strategy (ESS) to withdraw from financing any form of coal fired power plants and upstream oil exploration, and the exit from Russia further reduced opportunities to lend for this purpose. MEI EE has filled this funding gap, while both SEFFs and RE have continued to account for a relatively small part of the portfolio (16-18% each).

Figure 27: GET ABI Financing Output & Time



Source: CI ABI Database

Figure 28: GET ABI Financing Output & Client

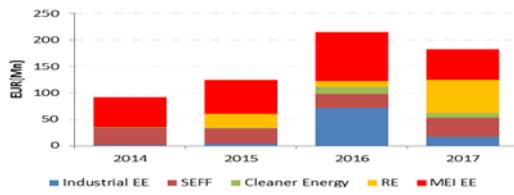


Source: CI ABI Database

**(iii) Non-Technical Cooperation Funds**

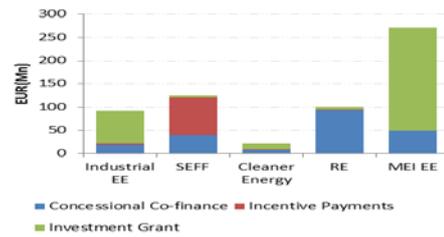
GET Non-TC almost doubled in the period 2014-2017, although it remained small as a proportion of GET ABI, peaking at 5% in 2016, and then declining to 3% in 2017. Non TC as proportion of GET Finance was slightly higher, ranging from 4-6%. Figure 29 shows that MEI EE is by far the largest user of Non-TC. Figure 30 indicates MEI EE mainly relies on investment grants. SEFFs are the main users of investment incentives and P&E is the main user of concessional loans.

Figure 29: GET Non-TC Financing Output & Time



Source: CI Non TC Database

Figure 30: GET Non-TC Financing Output & Instrument



Source: CI Non TC Database

Most industrial EE Non-TC is concentrated in Serbia and to a lesser extent Jordan. MEI EE has focused on the EEC and CAS regions (mainly Ukraine and Kyrgyzstan) and RE was allocated in Egypt and to a lesser extent Kazakhstan.

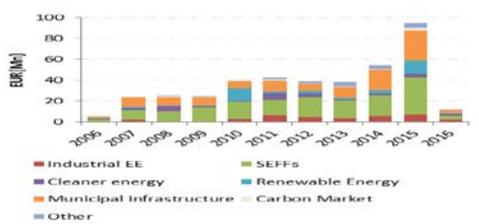
(iv) Technical Cooperation Funds

TC accounts for a small proportion of ABI. TC grants are used to fund activities such as: (i) standalone **policy dialogue** at the non-transaction level; and (ii) **project preparation** (e.g. for market reviews, energy audits, industry specialists) at the project or framework level. **About 26% of TC funds were allocated to CI policy dialogue, and the balance of the funding was used for project preparation (ie transactional).** While policy dialogue had a relatively minor share of the TC, it has been an important feature of E2C2's operations. There is an absence of financial data at the project level from the end of 2015, but it is reported there were more than 330 green policy assignments implemented across the Bank during the evaluation period.

The main focus of the policy advice is the preparation of effective regulations. An important feature of the policy dialogue has been the preparation of numerous **EE and resource efficiency action plans** at the national and city level to identify projects. SEAPs have been implemented in a number of countries (Bulgaria, Georgia, Kazakhstan, Moldova, Russia, Turkey and Ukraine). Under GET these plans have been expanded to cover NEEAPs, CGAPs, and the Green Financial System in Kazakhstan. The preparation of NDCs is now becoming a priority and in 2017 EBRD approved a TC of €5.0mn through the multilateral NDC Partnership.

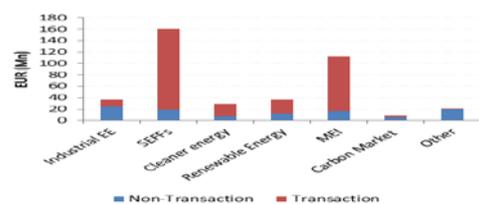
SEFFs were the main users of TC grants, followed by MEI EE, as shown in Figures 31 and 32.

Figure 31: GET TC Funds by Output



Source: CI TC Database

Figure 32: TC Funds by Output & Purpose



Source: CI TC Database

Most of the TC was allocated to Russia, Turkey, Ukraine, or Regional Facilities administered by E2C2.

## (v) Special Purpose CI Funds and Frameworks

E2C2 manages, or helps other departments such as FI and MEI, to coordinate a wide range of funds and frameworks that provide TC, and Non-TC, to catalyse ABI and Commercial Co-financing to develop CI projects, in many cases across multiple countries. Examples of the larger and broader focused CI frameworks include:

- **GET policy dialogue framework:** This framework is used by multiple departments including EPG, LTT and E2C2, and it supports the private sector and governments to set standards and create markets that incentivise green investments;
- **GET project preparation and implementation framework:** This facility helps clients identify opportunities in all COOs to improve energy and resource efficiency, climate resilience and environmental protection in their operations. It encompasses a range of audit activities that typically cost between €30,000 and €75,000 to implement;
- **Finance and Technology Transfer Centre for Climate Change (FINTECC).** This facility was approved by the Board in 2013 and it provides a framework for issuing **incentive grants to projects directly financed by EBRD that are located** in Ukraine and ETC up to € 5.79mn funded by the Global Environment Facility (GEF), and in the SEMED region up to €5.0mn that is funded by the SSF. Each FINTECC incentive grant can cover up to 25% of the total costs of the eligible best available technologies. TC funds of up to € 2.25mn equivalent were provided by the GEF for the ETCs and up to € 500,000 by bilateral donors for the SEMED region.
- **SEFFs/GEFFs** - These facilities consist of credit lines, Non-TC, and TC assigned to PFIs to finance intermediated CI projects. About 260 SEFF and GEFF frameworks were approved over the period 2006-2017. In June 2018, a Regional GEFF was approved that is financed with **USD300mn** from EBRD, and **USD100mn** provided by the GCF. The facility included TC of **USD23mnn**, with **USD11.5mn** from GCF and the **balance from the SSF and other donors**.
- **Green Cities Framework (GrCF)** - The framework is jointly managed by MEI and E2C2 and it aims to address cities' environmental challenges through municipal investments. GrCF provides a combination of strategic planning, and commercial and concessional finance, using a methodology initially developed by the OECD and ICLEI to identify municipal green investments needs. The Board approved the first GrCF in 2016, with a total value of **€250mn**, and it was expected additional grants / concessional finance of up to **€75mn** could be used to support the sub-projects. Demand was stronger than expected and in 2018 the Board approved GrCF2, which consists of a framework of up to **€700mn**, with concessional co-financing from GCF of **€210mn** and GCF TC of **€18mn**. The total amount of GCF funding indicated here is yet to be approved by the GCF Board. The GCF has – to date- approved €87m, incl. €65m (non-grant) & €22m (grant). Under GrCF2 loans of up to €25mn will be delegated to management for approval.

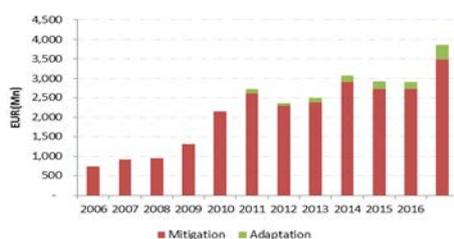
In addition to these facilities there has been a wide range of CI framework agreements to target directly financed projects in sectors such as RE in a particular country. Under many of these frameworks the Board has delegated responsibility to management for approval to finance projects below a certain minimum size (eg €25mn) to help reduce project transaction costs and implementation times.

### 3.6.2 Outcomes

While mitigation, adaptation and other were defined as the classifications for GET finance, and by implication were the motivation for implementing the projects, it is difficult to obtain a measure of performance at the outcome level.

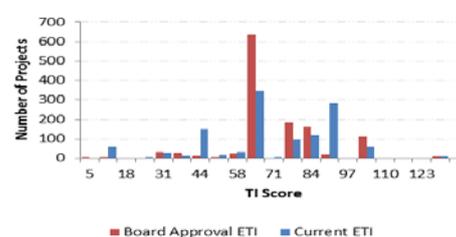
Figure 33, shows the allocation of GET Finance between mitigation and adaptation, indicating that 95% of GET finance was allocated to mitigation. Adaptation is starting to become more important, but it is still at a low level, relative to mitigation, and other (water and raw materials) does not feature. Regarding adaptation, from 2011 to 2018 the number of projects has increased to 35; and adaptation finance (for which there is no formal target but which is nevertheless tracked since 2011) has increased 2.4 times, from EUR 138m to EUR 332m. Figure 34 shows the ETI score for projects, and most of them exceeded the floor target of 60 at Board approval. The current ETIs for GET projects are generally performing better than expectations at Board approval.

Figure 33: GET Finance by Purpose



Source: CI Database

Figure 34: Distributions Expected & Current ETI



Source: CI Database

The main difficulty with the ETIs approved by the Board is their focus on the expected “means” to achieve transition, such as creation of markets, rather than actual “ends” such as the attainment of outcomes like reduction of GHGs. In 2009, the Board decided investments in sustainable energy and associated subsidies would be defined as process decisions that compensated for market failures, but TIs did specifically target reductions in carbon emissions itself (the outcome). As a result, the focus of TI continued to be on the “means”, rather than the outcome. The focus on processes and demonstration (innovation) effects means that TI does not support the scaling up and attainment of goals such as such as defined levels of GHGs within a country by a defined date. This weakness was one of the main reasons why the TI impact concept was revised in 2017.<sup>xvi</sup> The new TI framework now differentiates between outputs and outcomes, but performance is still based on changes within COOs relative to a basket of advanced economies that is unrelated to carbon budgets or levels of vulnerability within COOs.

In comparison, EBRD’s external reports on the use of climate finance, such as the annual Sustainability Report, or reports to donors of climate finance tend to focus on mitigation metrics such as avoided GHGs, or resource savings. The CI program is almost unique in EBRD’s TI results framework in terms of providing ex ante data on observable quantifiable physical outcome indicators where it is possible to directly measure ex ante and ex post changes in results within countries that provide a measure of performance on climate mitigation and resource savings.<sup>xvii</sup> In practice, comparisons of ex ante estimates and actual ex post data is not being prepared for climate reporting purposes, but the basis for making comparisons between ex ante and ex post data is in place, and it is possible to review changes in ex ante estimates.

The physical indicators consist of: (i) GHG reduction (avoided); (ii) primary energy savings; (iii) RE electricity generated; (iv) water savings; and (v) materials reduced. The SEI estimates of expected

emissions results tended to be at the low end of EBRD strategic expectations, and averaged **7.8mn tonnes reduction in GHG per year**. The results for each SEI phase were as follows:

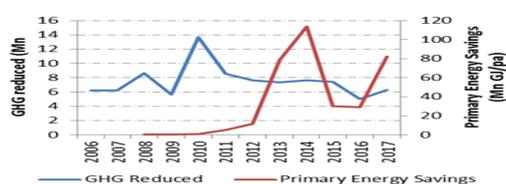
- SE1 achieved an estimated reduction in emissions of 21mn tonnes of CO<sub>2</sub> (**7.0mn t/pa**) for 2006-2008;
- SE2 achieved an estimated reduction in emissions of 26mn tonnes CO<sub>2</sub>, (**8.7mn t/pa**) against a target of 25 - 35mn tonnes CO<sub>2</sub> (**8.3-11.7mn t/pa**) over the period 2009-2011; and
- SE3 achieved an estimated reduction in emissions of 23mn tonnes CO<sub>2</sub>, (**7.7mn t/pa**) against a target range of 26 -32mn tonnes CO<sub>2</sub> (**8.7-10.7mn t/pa**) for 2012-2014.

There were **no physical targets specified in the SRI**. Similarly, **GET does not have physical outcome targets**, but the GET Implementation Update for the Board for 2017 indicated the following savings were estimated to have been achieved:

- GHG emission reductions: **6.3 mn t/pa**;
- estimated annual energy savings: 82mn GJ/par;
- water savings of 144. mn m<sup>3</sup>/ypa; and
- waste savings of 610,822 t/pa.

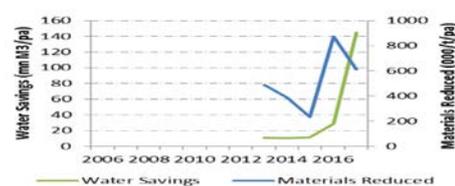
The annual results of emissions and resource savings from the CIs are presented in **Figures 35 and 36**. **Figure 35** shows that despite continued economic growth in COOs and the increasing size of the CI portfolio, **EBRD's contribution to avoided GHG emissions has been gradually declining since 2010**. There are no targets for adaptation except for the number of projects, with water savings being the only data being monitored, but this objective and the scale of operations, at least in financial terms, is still at a fairly low level, compared to mitigation.

Figure 35: GHG & Energy Savings



Source: CI ABI Database

Figure 36: Water & Resource Savings

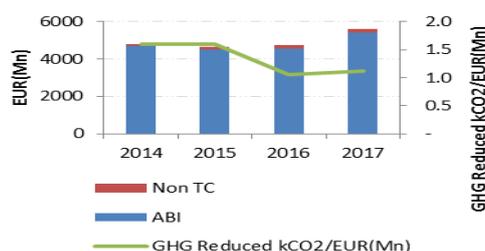


Source: CI ABI Database

To gain a measure of effectiveness of the outputs, the Non-TC and GET ABI CI databases were merged by EVD for the period 2014-2017, to try and determine the relative financial unit cost of reductions in GHG emission savings across different outputs. TC was not included in the calculation as data is not available from 2016 onwards, and in many cases it is difficult to attribute TC to any one project or output. Cleaner Energy was not assessed as the sample is small following EBRD's decision to exit from coal powered generation and upstream developments in fossil fuels. Carbon markets, TFP, and water and resource savings were not assessed due to the short time frame these activities have been CI objectives, and/or the small size of the sample.

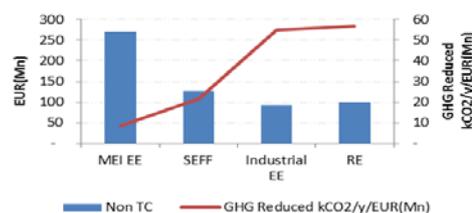
Figure 37 confirms the effectiveness of EBRD's support reducing emissions on a unit cost basis has been declining over time, although there was a slight increase in 2017. This decline was primarily due to EBRD's decision to stop refurbishing coal generation, and the exit from Russia, causing a fall in Cleaner Energy which had traditionally been a highly effective output. EVD then considered the effectiveness of the outputs at reducing unit costs. As ABI tends to have 2-3 TI objectives, and it has to meet minimum commercial criteria, the analysis focused on the unit costs of Non-TC GHGs avoided,

Figure 37: GHG Savings/€ GET ABI & Non-TC (Mn) by Year



Source: CI ABI and Non TC Databases

Figure 38: GHG Savings/€ Non-TC (Mn) by Output



Source: CI ABI and Non TC Databases

which is the most catalytic source of finance after TC. Cleaner Energy was excluded from the analysis due to the very small volumes of Non TC allocated to this output.

Figure 38 indicates that Non-TC allocated to RE and Industrial EE was almost 3 times more effective than SEFFs and MEI EE at reducing GHG emissions, and Non TC by volume is being allocated in inverse proportion to the GHGs being avoided. At present the only reported indicator for adaptation is number of projects and associated water savings, so it is not possible to comment on the effectiveness of resource allocation for this purpose and the extent to which such allocation has been optimal. As the level of funding allocated to adaptation at this point is small, this issue is not yet critical.

### 3.6.3 Climate Change Impacts

The CI programme targets EBRD’s direct commercial GET ABI financing support, relative to its own balance sheet, and TIs relative to advanced transition economies, rather than individual COOs’ climate change needs. The introduction of physical ex ante targets in SEI2 to provide a measure of the scale of net resource savings associated with EBRD support was a positive feature of the CI programme, although it was subsequently diluted by changing their status from targets to ex ante indicators that are unrelated to specific country-level GHG reduction goals. These estimates are recorded and reported on a net basis, so it is not possible to identify the baselines that can be used to verify the estimates with actual ex post data. These estimates only reflect an average operational year, and there is no data for financed facilities on expected life, and lifetime reductions in emissions. It is not clear how, or if at all, emissions that are displaced, rather than avoided, are addressed in calculations of net environmental benefits.

While these quantitative ex ante estimates are important, they can only provide a measure of climate change impact if they are: (i) set within the context of targets that reflect the GHG savings that COOs need to achieve to meet their sustainability objectives (i.e. their carbon budgets), or their adaptation requirements; (ii) provide baselines that enable comparisons of ex ante estimates and ex post results; and (iii) ex post results can be independently verified. As currently structured, the CI databases do not permit this type of analysis. Further difficulties arise due to the subsidy element included in the CI program, which requires an assessment of the benefits of providing support to a control group that does not receive support, relative to a group that does receive support, to determine additionality of subsidies. While the use of Non-TC conforms to the Bank’s guidelines for the use of subsidies, these counterfactuals do not form part of GET project designs.

In the absence of country benchmarks and targets, carbon budgets, data on ex post results, and evidence from control and beneficiary groups, it is necessary to consider proxy measures such as ATQs and

portfolio contributions to TI. In practice, it is difficult to obtain meaningful data even for these weaker forms of impact assessment, as they have been focused on means rather than ends, creating significant risks that resources are not being allocated to maximise GHG savings. The reliance on ex ante estimates, rather than reporting of actual results, relative to targets and baselines, means the ex-ante estimates are not being updated to reflect cancellations, disbursements, changes in scope, or the actual physical performance of the facilities at generating reduced levels of GHGs. The new TI methodology may shift the focus of operations to the attainment of green objectives, but this system is not yet fully operational, it is anchored in changes relative to advanced economies, and it is not comprehensive. If “green” is not selected by a banker as one of 3 primary TI qualities, then the project impacts are not included as part of TI benchmarks.

This lack of verifiable ex-post data on impacts is a concern. The financing target creates incentives for bankers to focus on short term project financing objectives, rather than long term GHG reductions or adaptation. These incentives create risks TC will be used for project preparation rather than conducting policy dialogue and developing upstream capacity to prepare country climate strategies and manage programs. While there is evidence of a large number of policy engagements, data indicates that in budget terms most TC funds are being allocated to project preparation. Given the lack of data and objectives for climate change at the country level, it is much more important to establish upfront institutional capacity and systems to collect ex ante and ex post data to prepare plans. This information can then be used to prioritize programs and projects, and establish targets and baselines to measure progress against country-level GHG reduction objectives. Similarly, there are strong incentives for bankers to focus on projects that generate direct mitigation results such as the level of avoided GHGs from new RE power generation plants, whereas the focus on indirect results such as improvements to strengthen the transmission grid to allow future RE plants to be developed may not always be “recognised” in terms of attributing GET finance or TI score, or capturing the underlying GHG impact. The use of targets such as number of projects creates similar disincentives for projects to meet adaptation requirements. There are strong incentives for concessional climate funds to be allocated to small projects, which form the traditional client base of EBRD, rather than pursue projects that have the maximum impact on avoiding GHGs, as demonstrated by the large amounts of concessional funds allocated to MEI and SEFFs/GEFFs, relative to Industrial EE and RE. Similarly, the financial data indicates there has been a heavy emphasis on designing projects using quick disbursing FCY, rather than developing more complex and sustainable projects using LCY, as discussed in **Annex 8**.

The absence to date of techniques such as the calculation of Economic Internal Rate of Return (EIRR) at the project level using a carbon price has exacerbated these risks. Under current CI project preparation processes, the achievement of mitigation GHG savings through the introduction of RE technology and retrofitting residential buildings and appliances are treated equally, even though the unit cost of non TC for RE is likely to be far less than the unit cost of residential SEFFs. Bank staff is incentivised based on ETI scores that reflect the level of difficulty finding green projects within a sector, rather than the EIRR within a country, raising further risks that resources are not being allocated to maximise GHG reduction or maximise climate resilience. Similarly, there is a tension between projects prioritised on the basis of the efficiency of the use of resources such as water, where reduced costs lead to an increase in consumption that raises the risk of unsustainable consumption of finite water resources.

These measurement and resource allocation issues become much more problematic when considering adaptation, which is both context- and location-specific and is concerned with identifying the vulnerability of functions or facilities to climate change. In many cases, adaptation may be as simple as modifying a project design to allow for changes in processes or capacity at some unknown point in the future when

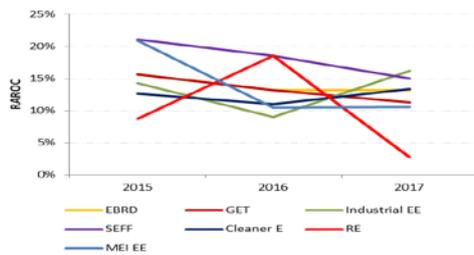
adaptation needs are known. However, in the absence of country baselines and targets, and assessments of vulnerability, it becomes impossible to identify the amount of possible future negative impacts associated with actions, or the level of investment required to minimise expected climate change impacts.

### 3.6.4 EBRD's Financial Performance

EBRD's BPN does not produce reports on financial performance from a program perspective, and Finance Department provided EVD with the data on CI financial performance presented in **Figures 39 and 40** following a special request. The data in **Figure 39** shows the actual return on required capital (RoRC) before cost allocation on the GET share of the portfolio (debt assets only) in the last 3 years based on a risk adjusted basis. This return metric is calculated as revenue less incurred losses divided by opening required capital. The denominator is based on EBRD's Capital Adequacy Policy. **Figure 40** presents Return on Assets (ROA) relative to the associated probability of default (PD) in 2017.

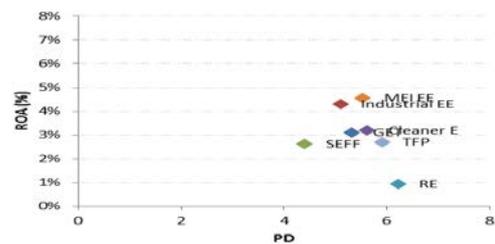
**Figure 39** shows financial returns on GET projects and EBRD's overall loan portfolio are almost identical, which is not surprising given the size of the GET Portfolio as a proportion of EBRD's total portfolio. GET performance is slightly lower than the EBRD average in 2017 due to declining margins on SEFFs, and the poor performance of the RE portfolio, where returns have been very volatile. **Figure 40** indicates that MEI EE and Industrial EE yielded the highest returns, but the quality of credit was highest for SEFFs.

Figure 39: RoRC by GET Outputs



Source: Finance Department

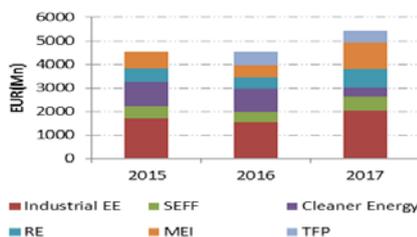
Figure 40: ROA v PD by Output, 2017



Source: Finance Department

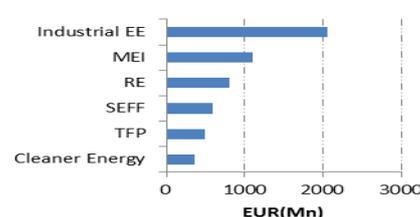
**Figures 41 and 42** show the allocation of resources across the CI outputs and the dominance of Industrial and MEI EE relative to other outputs such as RE.

Figure 41: GET Portfolio 2015-2017



Source: CI ABI Database

Figure 42: GET Portfolio, 2017



Source: CI ABI Database

These results indicate the amount of funding allocated to different types of outputs is reasonably proportional to the risk adjusted financial returns accruing to CI ABI. The main exceptions are SEFFs, where it appears there may be absorption constraints, and Cleaner Energy, which is being phased out.

### 3.7 Evaluation Conclusions

Despite some significant limitations, the CI data provides important insights into how EBRD has been allocating resources to climate change outputs, and levels of performance.

**Were the CI objectives relevant and well-suited to the requirements of the COOs and the institutional context of EBRD?**

- Climate change is a significant risk for COOs;
- Most COOs lack institutional capacity to respond to climate change;
- Mitigation and adaptation to climate change are a priority for COOs and EBRD;
- SEAPs and SEFFs/GEFFs have been identified as an important instruments for prioritising CI activities on the national level, including the allocation of climate finance; Volumes of concessional finance managed by EBRD to address climate change have grown significantly in recent years, particularly from the GCF and the EU;
- The scope of the CI program has become much broader over time and it now encompasses both climate change, which is a global issue, and resource sustainability, which is a local issue;
- Climate change is assuming much greater prominence than sustainability as a motivation for third parties such as the international climate funds to allocate concessional finance to EBRD.

These findings support the view the CI program was highly relevant and well-suited to the requirements of the COOs and the institutional context of EBRD, but focus on GHG reduction has been diluted over time.

**Was the CI program implemented effectively?**

- The CI program achieved all of its ex ante financing volume and TI targets approved by the Board;
- EPG, ESD and E2C2 are collecting ex-post climate data, but there is no analysis, validation, or reporting of ex ante versus ex post data;
- The Bank has some capacity and collects ex-post data for about a fifth of projects (covering selected projects with the most significant GHG reduction impact), but there is no comprehensive assessment across the full portfolio.
- While levels of public and private finance mobilised are growing, amounts are relatively small compared to ABI;
- TC and Non-TC is becoming more programmatic in their application, although overall, external sources of climate financing, and management within EBRD, remains extremely fragmented;
- TC allocations for policy dialogue, development of COO capacity building for planning, monitoring and reporting on climate change are low compared to project preparation, although it is reported that policy dialogue has become more important over time;
- Allocations of TC and Non-TC are distinctly different to ABI, with SEFFs and MEI EE being the main beneficiaries of TC and Non-TC whereas Industrial EE has been the main source ABI;
- While Cleaner Energy, Industrial EE and RE had the greatest GHG reductions impact on a unit cost of Non TC basis, allocations of Non TC were low relative to SEFFs and MEI; and
- Allocations on Non TC were allocated largely in inverse proportion to the unit cost GHG savings.

These findings indicate a weak linkage between the volume of expected emissions from countries and EBRD managed resource allocation, particularly in regard to TC and Non TC. TC funds were primarily allocated to project preparation, rather than policy dialogue, institutional capacity development, and preparation of climate change mitigation and adaptation strategies for COOs. Most of the Non-TC and ABI funds have been allocated to EE (81%), compared to RE (19%), and there has been limited Non-TC funding allocated to transport [or adaptation to date.

Carbon market development and TFP made virtually no contribution to GHG emission reduction or climate resilience outputs. While the Bank supports CI investments in the Transport sector, Transport is categorised under Industrial EE and MEI EE so is not directly featured in the CI outputs. While some TC was allocated to Carbon markets, there was limited success, for reasons beyond EBRD's control. Global carbon prices collapsed in 2012, as supply exceeded demand, and the world community was unable to agree on the post-2012 climate policy framework.

GET projects financed with Non TC, are not designed to generate data on counterfactuals that can be used demonstrate additionality, and improve project designs over time. This omission is an important issue given that EBRD is managing increasing amounts of subsidised finance and the high risks of crowding out private sector participation, and other sources of public funds.

EBRD has been achieving its financial lending volume and TI targets, but ex ante estimates of reductions in GHG have been falling since 2010, in part because of a decision in the ESS to stop financing Cleaner Energy Savings. There is evidence from previous evaluations indicating ex ante estimates can be substantially over stated, relative to actual ex post results.

An analysis of GHG savings/€ of Non TC over the period 2014-2017 shows RE and Industrial EE were almost 3 times more effective at reducing GHG than SEFFs and MEI EE, indicating the allocation and effectiveness of Non TC, and by inference (in the absence of data) TC, could be improved. There are no targets for adaptation apart from number of projects in department scorecards, making it difficult to assess effectiveness, but volumes of finance allocated for this purpose have been low, relative to mitigation.

#### What have been the results of the CI to date?

##### *Climate Change Impact:*

While effectiveness has continued to be positive, it is not possible to determine the level of climate change mitigation and adaptation benefits achieved. Despite significant investments in SEAPs, and more recently NEAPs and GCAPs, there is no reporting on baselines and targets for avoiding GHGs in individual COOs, limited data on vulnerability, and no data on counterfactuals to demonstrate additionality of concessional funds. Further problems arise from MRV systems which do not measure, report or validate actual (ex post) emission levels from projects, relative to ex ante estimates. Bankers are not being incentivised to target concessional and non-concessional funds towards activities that maximise GHGs savings either directly through project related reductions, or indirectly through system based reductions enabled by EBRD financed projects. There are no metrics to guide the allocation of funds towards high impact adaptation projects. System based investments in projects such as expansion of electricity transmission networks to support increased capacity of RE generation, and benefits from financing adaptation, can only be properly assessed in the context of country plans designed to support NDCs, which do not yet exist.

##### *Financial Performance:*

The analysis of the financial performance of the various CI outputs indicates SEFFs, Industrial EE, and MEI EE are the highest performing outputs on a financial risk return basis, while RE projects have been volatile over the period 2014-2017. The high level of risk of the RE projects maybe one of the reasons why a relatively small proportion of the CI ABI Portfolio was allocated to this type of output, compared to Industrial EE and MEI EE, over the period 2014-2017. This result indicates there is a conflict between structuring the ABI portfolio to achieve GHG reductions, relative to achieving sustainable financial returns, and more needs to be done to improve the stability of RE financial returns.

## 4. Implications of Findings for the CI Program

### Summary of Opportunities:

- While growth in climate finance is likely to continue for the foreseeable future, EBRD's ability to continue to attract these funds in the medium term will require it to demonstrate results in terms of actual impact on reduced GHGs, and improvements in resilience, in line with COO requirements;
- EBRD lacks an impact management framework that reflects the lifecycle of EBRD engagement within a country at the project and portfolio level, and allocates funds to outputs with a view to demonstrably achieving results;
- The scope of the CI program has changed considerably since SEI was first approved in 2006, and it now encompasses global climate change and local material efficiency initiatives, with an underlying unifying theme of improvements in efficiency;
- The broadening scope of GET is creating logical conflicts as efficiency is not the same as sustainability, and sustainability is not the same as climate change, raising the issue of whether the GET concept needs to be refined to improve focus and EBRD's ability to deliver results;
- There is a lack of country plans that provide details on adaptation vulnerabilities, carbon budgets, base lines, targets, counterfactuals and methods of collecting data on results that are set in the context of countries' climate change programs;
- There are opportunities to develop standardised concessional finance products that are pooled to strengthen management arrangements for allocating and managing these funds;
- EBRD can move upstream to improve the creditworthiness of projects, particularly in the RE, transport and water sectors, and increase use of LCY finance; and
- Blended finance can be used strategically to address market failures, with the view to increasing the mobilization of commercial private co-finance by demonstrating additionality, and seeking leverage and commercial sustainability.

### 4.1 Overview

Energy Efficiency has been a priority at EBRD since the early 1990s and it has emerged as a leader amongst MDBs in developing and implementing climate change programs. The CI Program has achieved all of its financial volume and TI targets that were approved by the Board. The establishment and resourcing of E2C2 and other departments in EBRD has established internal critical mass and capacity and internal processes and incentives to support CI objectives. External profile and credibility have been earned with shareholders, governments of COOs and multilateral partners. EBRD is attracting growing amounts of available climate finance, particularly from deeply resourced partners such as the GCF and the EU. Volumes of concessional TC and non TC have grown in the last 2-3 years, providing critical necessary support for operations.

However, these undoubted positive aspects of the CI and its implementation exist alongside some areas of concern and underperformance from the GHG savings maximisation standpoint. EBRD's effectiveness at reducing GHGs has been declining, and it is not directing concessional resources to areas where effectiveness and impact are likely to be greatest. Staff incentives are based exclusively on financing volumes and number of projects rather than attainment of climate change related objectives. These incentives, the absence of an effective performance management framework and poor data limited to ex ante estimates do not provide a basis for allocating resources to pursue pure GHG reduction objectives. The findings of the evaluation are reinforced by previous evaluations prepared by EBRD and other agencies such as GCF. As a result, there are opportunities to update and strengthen the performance of the CI business model to better meet existing priorities and respond to new challenges that are in line with the recent Strategy Implementation Plan approved in 2018.

To date the primary focus of operations has been mitigation and EE, with little concessional support being provided to large industrial sectors such as cement, infrastructure such as RE and

**transport, and adaptation.** The CI business model has mainly been driven at the project level, and programmes such as the GrCF have only recently started to be developed at scale. Sources of concessional funding are highly fragmented and allocated to a multiplicity of objectives. Ex post data is not being compared with original ex ante estimates and used as a basis to measure and report on actual achievements at reducing GHGs, and there is little data available on how projects reduce countries' vulnerability. EBRD has no reliable data on TC, and projects are not designed to generate data on counterfactuals that support claims of additionality.

**External concessional finance to mitigate and adapt to climate change will likely be available for the foreseeable future.** Carbon prices continue to be very low, and the cost of climate change is not being internalised in prices. As a result, concessional funds are an important tool to address problems of market failure. A critical factor underpinning EBRD's ability to tap into these funds will be its ability to demonstrate results in line with COO and donor requirements. IFC recently issued a set of principles for Impact Investing that provides a useful framework for developing investment strategies that demonstrate impact to various stakeholders.

**The use of blended finance raises issues about the need to minimise concessionality, and ensure commercial sustainability.** These considerations raise further issues about whether MDBs should be using concessional funds to improve affordability to users (the current situation) by reducing the cost of climate change outputs (a pull strategy), or developing financing structures that maximise mobilization of private sector finance to provide climate change outputs (a push strategy).

**There is a need to develop new ways to mobilise more private finance to support climate goals.** As noted by the G20 Eminent Persons Group<sup>xviii</sup>, and endorsed by EBRD's Board and management in the 2018 SIP, there is a need to increase impact by strengthening institutional capacity within countries, and mobilizing private sector financing in total by altering investment risk profiles, rather than focusing on maximizing MDB lending. The SIP highlighted the increased emphasis on risk mitigation instruments and use of LCY. OECD has recently issued a set of principles<sup>xx</sup> that reinforces this view and elaborates on how subsidised blended finance can be used to mobilise commercial co-finance. These principles highlight issues such as the need for a clear rationale for projects and programs, and monitoring for transparency and results.

**Both the demand for climate change services in COOs and the supply of concessional finance depend on credible business cases and reports of success.** Business cases need to clearly define logical chains of causality, and credible counterfactuals that can be evaluated and used to support claims of additionality. Robust forms of accounting for results will require effective MRV systems that integrate and validate ex ante and ex post data to maximise opportunities for learning and mitigate risks of impact-washing and green-washing through double counting, or accounting for results that have never occurred.

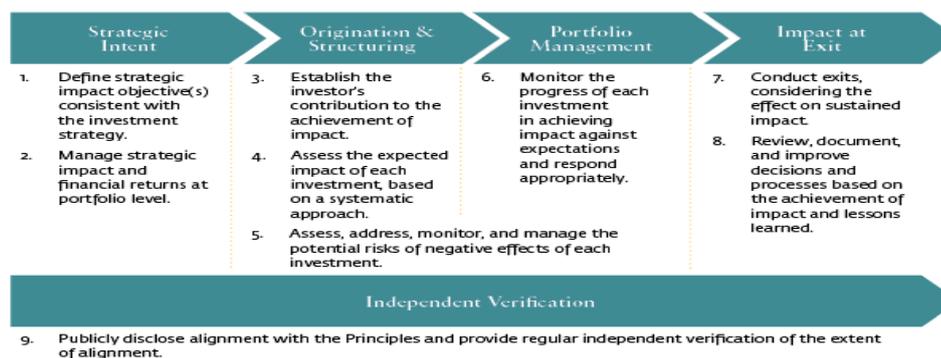
## 4.2 Opportunities to Enhance CI Performance

### 4.2.1 *Develop an Impact Management Framework*

**A primary CI objective is to accelerate GHG reductions by mobilizing public and especially private finance.** IFC recently issued a set of principles to guide the development of impact investing programs using private finance.<sup>xx</sup> EBRD was part of the "sounding board" that worked on the development of the principles and became a signatory in 2019. The elements and principles underpinning this process are illustrated in **Figure 42**. These principles are designed to clearly demonstrate how investment portfolios can be aligned with impact goals such as reductions in GHGs and the achievement of other SDGs.

The process is generic and provides a framework for investors and financiers such as MDBs to design and implement impact management systems to address issues such as climate change. EBRD's GET impact methodology only encompasses the first of the 5 elements - strategic intent. Identification of the actual ex post contribution to the achievement of impact, monitoring impact, exiting from projects in the light of expected impact, and independent verification of impact, are largely absent from EBRD's ex ante management and reporting system for CI. The development of a comprehensive impact framework would reduce project risks, and increase confidence in the donor community and commercial co-financiers that funds are being deployed effectively, efficiently, and sustainably.

Figure 42: IFC Operating Principles for Impact Management



Source: IFC

The development and application of such a framework for GET seems entirely feasible as the carbon budgets of countries under various emissions scenarios are known, the existing rates of emissions within countries are broadly known, and the time line to reduce emissions under various IPCC scenarios are also known. Similarly, it is feasible to determine countries' vulnerability to climate change under various scenarios, and start planning and implementing programs to address these risks. This information can provide EBRD and COOs with targets on what needs to be achieved. With this information, it is then possible to conduct country audits to identify the main sources of emissions or vulnerabilities to climate change, identify constraints and critical risks, develop strategies for implementing green growth development paths for each COO and establish baselines and targets.

This information would provide the basis for making estimates of required levels of investment, MRV arrangements, and potential sources of funding and finance to implement the required program. EBRD can then make decisions on how it can maximise its contribution to COOs efforts to achieve these targets. Programs and projects can then be designed that include counterfactuals, and generate ex post data that can be used to help establish additionality and performance of individual projects, and provide feedback on the adequacy of project designs, and opportunities for improvement.

#### 4.2.2 Clarify the Scope of the GET Programme

The CI program has evolved considerably since the early 1990s when it was focused on EE. In 2006, the CI program was formally initiated and the scope was broadened to include Climate Change, which was defined as the primary objective. Since then the scope of CI has steadily increased to encompass RE, adaptation, water scarcity and then materials efficiency. The introduction of materials efficiency in the SRI effectively broke the link with climate change. In practice, material efficiency has not featured prominently in the SRI/GET portfolio of projects (on average it has accounted for about 6% of the

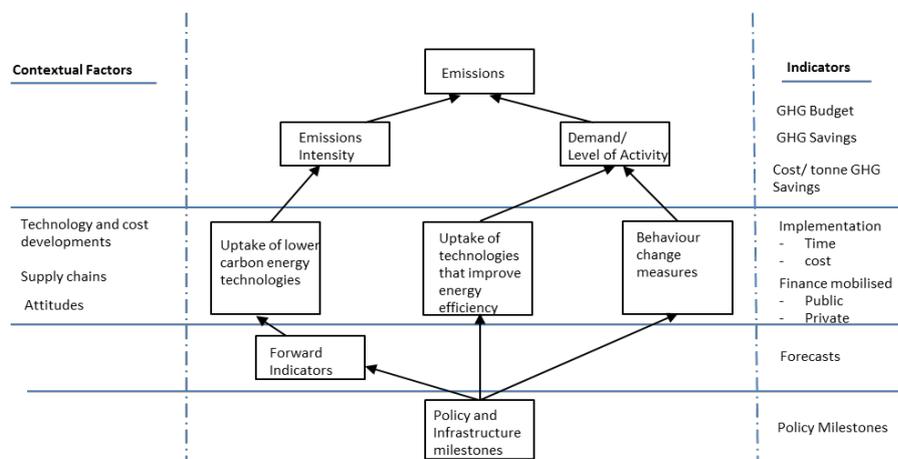
GET finance since 2013), but as it stands, its introduction has meant almost all EBRD projects could now potentially be classified as “sustainable” under GET.

**The ever broadening scope of sustainability creates a number of issues.** In the first instance, efficiency is a flow concept that is not equivalent to sustainability, which is a stock concept. For example, improvements in water efficiency could lead to reductions in costs that would lead to an increase in water consumption that would speed up the rate of water aquifer depletion, and reduce water sustainability. Perhaps more importantly, climate change is not the same as resource efficiency. Climate change impacts are global rather than local, and the primary focus of reforms is: (i) the mitigation of emissions through improvements in both efficiency and modal shifts in capacity to low carbon technology; (ii) building flexibility into projects to enable adaptations to climate change; and (iii) developing capacity to manage consequences of climate change.

**An exclusive focus on efficiency of all types of resources creates risks of loss of focus, direction, and relevance to the COOs and the donors.** This is not to say resource efficiency and sustainability are not important, but they are distinctly different to climate change and this difference should be acknowledged when designing, and implementing projects. This conclusion suggests GET sustainability targets would benefit from further refinements to clearly differentiate between climate change and sustainability.

At the same time, there are opportunities to broaden the scope of the climate change program. There are other levers besides EE to achieve reductions in GHGs, including measures to **change behaviour** (eg by removing fuel subsidies and introducing a price for carbon) and **increasing capacity** of clean technology in sectors such as such as RE, and industries such as cement and oil refining, as illustrated below.

Figure 43: Indicators to Target and Track GHGs



Source: Adapted from: Climate Change Committee Indicators to Track Progress in Developing GHG Removal Options, 2017

Underpinning this framework, data are needed that can be organized by outputs and outcomes for countries, programs, and projects, rather than by financial instruments. It is then possible to define targets and indicators for achieving expected results, based on improvements in areas such as targeting, reducing unit cost, effective implementation, and mobilization of finance from public and private sources.

#### 4.2.3 Develop Country Plans and Improve Quality of Data in COOs

A striking feature of the climate change debate is the lack of plans and data on what actions need to be taken to reduce climate change risks at the country level. While annual data on GHG emissions

is collected and reported to the UN at the country level it is often years out of date and there is little information on what actions might be taken to achieve NDC goals. While EBRD has prepared many SEAPs and NEAPs, they have often been narrowly focused on EE objectives, and in many cases the SEAPs were limited to a range of services that can be provided by EBRD to governments. As a result, the action plans lack critical information on: available carbon budgets; vulnerability assessments; sources of GHG emissions; adaptation requirements; requirements for new RE capacity; baselines and targets; coordinated programs on how the targets will be achieved; expected sources of funding; and institutional capacity to develop policy, define standards, administer regulations, and implement MRV systems that credibly report on estimated versus actual emissions, relative to targets and available carbon budgets, or achievement of adaptation objectives.

**The CI program is unusual as it benefits from growing amounts of grant money, and other forms of concessional finance which can potentially be used to undertake high risk activities that often lack revenue streams** such as the development of policy and upstream institutional capacity within COOs. The Bank has launched the first dedicated TC framework of €5.0mn to operationalise NDCs, and the first project under this framework is currently being rolled out in Ukraine. There appears to be a strong business case to allocate additional amounts of grant funds to developing policies, regulations and institutional capacity within COOs to prepare and implement plans to meet or exceed the NDC targets, and measure and report on performance.

#### *4.2.4 Use Business Cases and Expected Impact to Guide Allocation of Concessional Funding and Document Results*

**At present most concessional finance is allocated in a way that does not maximise GHG reduction/climate resilience impact.** The amounts of concessional finance tend to be small, relative to total project costs, and they are not scaled to reflect projects' climate change benefits. To date there is little independently verified ex post evidence that confirms these funds mitigate climate impacts, or meet adaptation needs. EBRD could potentially make better use of concessional funds by adopting a cascade approach where concessional funds are allocated to maximise avoidance of GHGs/€, or reduce vulnerability/€. By adopting this approach, grants could potentially be used to support initiatives in the following order:

- Provide policy advice to define requirements for low carbon development paths, and develop institutional capacity to collect data for sustainability reporting and disclosure among public and private sector agencies;
- Promote structural reforms such as the development of auctions for subsidies in sectors such as RE where payment is contingent on predefined criteria of success. EBRD already has initiatives to support disclosure on financial institutions exposure to climate risks, which could be scaled up;
- Develop programmes similar to the Green Cities, targeting high potential sectors such as heavy industry, RE and transport;
- Provide assistance for pre-feasibility studies, and develop pipelines of projects in sectors such as infrastructure for tender; and
- Provide grants at the project level that are linked to actual reductions in GHGs, rather than investment. Payments for success are a central feature of the UNDP's Reducing Emissions from Deforestation and Forest Degradation (REDD+) program and they could potentially be applied in non-traditional sectors such as heavy industry.

The objective should be to create an environment where programs clearly identify investment needs, coupled with projects that can earn a commercial return. In many cases, it may be sufficient to limit support to developing feasibility studies, without having to spend grant money on project preparation and capital incentives.

#### 4.2.5 *Target Concessional Funding at High Potential Countries and Sectors*

**Allocation of concessional and commercial funding to COOs can be aligned with achievement of CI objectives.** The allocation of a large proportion of TC funds appears to be driven by legacy decisions and the priorities of donors such as the EU, rather than the level of GHGs being emitted by individual countries, and the effectiveness of the programs. While it is accepted donors are not obliged to contribute funds to EBRD if its programs do not reflect their objectives, there is an opportunity for EBRD to pool donor funds to reduce GHGs in all of its COOs as a group, rather than individual countries. Climate change is a global phenomenon, and it is in donors' interests to maximize the potential to reduce GHGs across COOs, rather than individual countries. As such, EBRD could increase its efforts to explore the potential to establish a more standardized set of concessional funding facilities and instruments that can be pooled and resource allocations optimised to reduce GHGs on a regional basis.

**There are opportunities for EBRD to more effectively target countries and sectors that have the greatest potential to reduce GHGs, and address consequences of climate change.** EBRD tends to allocate funds across countries according to metrics such as stage of transition, which is unlikely to be related to levels of GHG emissions or vulnerability to climate change within countries. An analysis of emissions indicates they are mainly concentrated in a small number of countries, indicating that potential to reduce GHGs should be the main criteria to allocate funds for mitigation. Similarly, vulnerability to climate change should be the main criteria for allocating funds to achieve adaptation goals.

**Similar conclusions arise when considering the allocation of concessional funds across sectors.** At present, EBRD has been focusing primarily on EE, and allocating most of its concessional funds to SEFFs and MEI EE. The evidence derived from the evaluation indicates these outputs are less effective than RE or Industrial EE at reducing GHGs per unit of funding. Based on the current allocation of ABI, there are opportunities to increase the allocation of funds to RE if the historical project credit issues are resolved. Most COOs are still far short of the EU target of having 20% RE Capacity by 2020 and the achievement of this goal will require extensive investment in both RE and smart transmission and distribution capacity.

**A strong case can be made that EBRD should re-engage in the provision of Cleaner Energy services, where it does not lead to new capacity of fossil fuels.** Historically, reductions in coal fired emissions have been one of the most cost effective ways of reducing GHG emissions. Re-engagement could be limited to provision of advisory services, if direct financing was not a feasible option. Similarly, evidence from gas flaring and oil refinery clean energy programs in Egypt indicates there are substantial opportunities to roll out similar programs across all COOs.

**Transport does not feature in EBRD's list of CI outputs**, and it is included under the heading Industrial EE. Agencies such as the IEA expect transport to be one of the primary sectors that will contribute to reductions in GHGs. In practice, it has proven difficult to effect change in this sector compared to RE, although technological change is occurring. It is likely there will be a shift to more rail and urban public transport. Private modes of transport are also likely to change. The costs of car batteries have fallen in recent years and there is an expectation that hybrid and electric passenger vehicles will become much more common in urban areas within the next decade. While these changes have not yet started to happen

at scale, it seems clear they will occur, and transport infrastructure projects should be designed in a way that provides sufficient flexibility to accommodate changes such as the need for vehicle charging points, and the advent of autonomous electric vehicles as they become commercially viable.

**There is need to integrate mutually reinforcing developments across multiple sectors.** Energy systems will need to be developed with a high level of RE capacity to support the electrification of urban and inter-city transport. Programs such as the Green Cities Initiative have high potential to capture synergies across a range of sectors, and provide the basis for engaging in new sectors such as forestry by creating green belts that act as carbon sinks. Similar methodologies could be applied across multiple sectors such as energy, transport and water. The recent establishment of the Bank's Sustainable Infrastructure Group (SIG) will underpin the promotion of such integrated approach.

#### *4.2.6 Target Concessional Funding at High Potential Programs and Projects*

**A closely related issue to resource allocation at the country and sector level is how funds managed by EBRD are allocated to programs and projects.** The Bank should be increasing its efforts to move beyond the traditional focus on financing individual projects to building regional and country-specific programs in collaboration with governments and other MDBs that provide a supportive policy and regulatory environment and programs that target investor groups with tailored packages of investment opportunities, and risk-mitigation instruments.

At the individual project level, there is a need to acknowledge that climate change in particular, and sustainability more generally, demonstrate significant externalities that cannot be captured in traditional EBRD project analyses based on FIRR and/or debt servicing capacity of the borrower. Management has recently announced its intention to use Cost Benefit Analysis (CBA) for some of the larger energy projects financed with ABI to address these concerns, but it has been presented as a highly complex and expensive technique that will only be applied to less than 10 projects per year.

**In practice, it is probably much more important that CBA is used to allocate concessional funds, which by definition are being provided to help address market failures.** Other MDBs routinely use CBA, and there is a strong case for EBRD to start using a similar methodology for projects that use concessional funds, rather than basing the use of this methodology on the magnitude of emissions avoided. Even if the methodology was simplified and limited to measuring the unit cost of GHG savings, or avoided costs of climate change, it would provide an important mechanism to improve the design and allocations of concessional funding for various programs and projects.

#### *4.2.7 Develop Innovative Financial Instruments and Structures to Mobilise Private Finance*

**EBRD has primarily used investment grants and concessional loans to improve project affordability.** This approach is unlikely to improve bankability of projects, and in many cases this assistance has had minimal impact on affordability. Investment grants account for a small proportion of capital expenditure, which in turn is typically only a small proportion of whole of life costs.

**To date EBRD has made limited use of risk management instruments to improve bankability and attract private finance.** EU is intending to scale up the use of risk mitigation instruments through its structural funds to improve the risk return profile of investments, and E2C2 has established a unit to scale up the application of these types of instruments as part of GET financing structures. These risk management instruments are being structured as subordinated contingent first loss instruments. As indicated in the 2018 SIP, there are opportunities for EBRD to follow the EU by using concessional funds

---

to develop contingent first loss instruments and standby liquidity instruments that improve program and project bankability, which are scaled according to expected benefits, and level of private capital mobilised.

**At present, these risk management instruments are primarily used on the supply side, and logically, they should be applied to manage project risks on both the demand and supply side.**

These opportunities are greatest in the infrastructure sector, as projects are reliant on cash flows to service debt, and lack collateral to reduce project risks in areas such as output payments and exit. As a result, despite large amounts of capital being available in the private sector, there has been an unwillingness to invest in these facilities, resulting in the so called “infrastructure gap”. Public private partnerships (PPPs) can be designed so that demand risks and market revenues are retained by the public sector and private sector providers are paid with availability payments for capacity.

**Governments can potentially establish offtake funds that collateralize project cash flows by ensuring funds are available to make availability and termination payments when scheduled under project documentation (Annex 8).** While there are examples of funds in countries such as Kazakhstan that have been developed to ensure availability of offtake payments for renewable energy projects, the sums involved are very small and limited to offtake obligations. Traditionally governments have been reluctant to establish these types of funds due to perceptions of cost, but they are likely to be small compared to the benefits arising from enhanced attractiveness of the projects to private financiers and the opportunities they create to reduce costs through increased leverage and tenors and reductions in risk margins.

**Infrastructure projects financed by PPPs can reduce whole of life costs by more than 50% through competitive procurement and ensuring incentives are in place to maintain assets<sup>xxi</sup>.** Similarly, PPPs can potentially unlock large amounts of incremental revenues for the public sector from market revenues (if making availability payments), sales taxes/VAT, corporate taxes, property taxes, and property rentals from government land owned adjacent to facilities such as solar farms, or airports and their associated captive passenger flows. In the interim between the realization of these incremental revenues, funds can be financed with debt structured in a similar way to an overdraft facility, with the net cost to the government being the difference between the borrowing and lending rate, and commitment fees. These costs are likely to be minor, relative to opportunities to increase project attractiveness, increase leverage and reduce margins. Underpinning these arrangements steps can be taken to ensure government agencies can tap into these incremental tax revenues.

**At present a significant proportion of EBRD’s co-financing is sourced from other MDBs, rather than the private sector, although it is not possible to precisely determine the magnitude of this split due to a lack of data.** Given the ability to enhance project bankability, there appears to be significant opportunities to scale up co-financing and syndications of debt from private financiers. The use of capital market instruments such as project bonds to refinance projects, coupled with credit enhancement from EBRD, is another area where there are opportunities to scale up the mobilisation of private finance. Project Meadow (BDS17-177) that was approved by the Board in 2017 provides a good example of what can potentially be achieved in this area. EBRD invested in a mix of senior and junior equity in a fund, which was then invested in publicly listed and rated green bonds in COO. The junior shares provided an unfunded first loss risk cover for certain credit-related events. The Project benefited from an EBRD Green Bond TC Programme which was established to support the development of Green Bonds aligned with the Green Bond Principles in the EBRD region.

#### 4.2.8 *Make Greater Use of Local Currency Finance*

The 2018 SIP indicated that GET projects would be supported by a comprehensive program of LCY and capital market development, but GET ABI is almost totally denominated in FCY. This practice creates significant financial risks for both clients and EBRD, particularly when it is financing businesses engaged in domestic trade, and infrastructure assets that generate revenues in LCY. The primary justification for using FCY is the lower rate of interest than LCY rates, but these savings are minor when assessed in real terms in the context of projects' whole of life costs.

The use of FCY introduces substantial FX risks for borrowers as demonstrated by countries such as Egypt where the EGP/USD year on year depreciated by 132% in 2016, in Kazakhstan where the KZT/USD rate depreciated by 86% in 2015, and Ukraine where the UAH/USD depreciated by 97% in 2014, and a further 52% in 2015<sup>xxii</sup>. Analysis by TCX Fund (in which EBRD is a shareholder) indicates that 1-in-8 developing world currencies fall 20% or more against the dollar in any given year, and there is a 1-in-20 of a crash of 50%.<sup>xxiii</sup>

As discussed in Appendix 8, this currency risk could be eliminated if projects were financed in LCY, and it would substantially improve their credit worthiness. The removal of FX risks would make the projects more attractive to governments and end users, and it would provide opportunities for participation from local financial investors such as sovereign wealth funds, pension funds and insurers. Local participation would provide support for developing and deepening local banking and capital markets and enhance the prospects for follow-on investments.

P&E has made the greatest use of LCY within the CI Program, but the amount is about 20% of its annual ABI and it has been trending downwards. EBRD is closely engaged in the design of power purchase agreements (PPAs) in COOs and it has the ability to design tariffs in LCY, as demonstrated by the M-KAT Green Solar power plant recently approved for financing by the Board in Kazakhstan (BDS 18-227). Similarly, a GEFF is being designed in Ukraine with support from TCX. This practice should be mainstreamed across all projects with LCY revenues.

EBRD can relatively easily access LCY in large COO markets using instruments such as LCY bonds to finance small projects, but it is more complicated for large long life infrastructure projects in small markets. There can be issues associated with relatively short tenors in local markets, but they can potentially be resolved by mechanisms such as including a pass through for interest costs in the tariff when refinancing, the use of URPs to underwrite longer tenor instruments, and active management of LCY portfolios.

The main constraint on the use of LCY is EBRD's financial policy requiring Treasury to hedge all interest and exchange rate risks in FCY, and this can be difficult to achieve in small markets due to institutional constraints on foreign participation in LCY. In these circumstances, there is a strong case for EBRD's Treasury to be given additional resources, potentially sourced from concessional climate funds, to mitigate risks by strengthening government's institutional capacity to open up the foreign exchange markets and facilitate foreign participation in climate change projects. To help ensure these opportunities are identified and acted upon, Country Strategies and updates could be modified to include a section that elaborates on opportunities and constraints on the use of LCY. Bankers' incentives to use LCY can be strengthened by revising the TI framework to reflect use of LCY financing as a positive contributory factor, and include LCY targets in Banking scorecards.

#### 4.2.9 *Strengthen Institutional Arrangements for Concessional Climate Funds*

Under the current organization structure E2C2 provides support to the banking teams by working with DCF mobilising external sources of concessional finance and providing specialist technical advice in the areas of policy, regulation, and technical and financial design of projects. The close alignment of E2C2 with Banking, and focus on lending volume are seen as key drivers of its success in mobilising climate finance, particularly from the GCF. This relationship helps incentivise E2C2 to ensure its support leads to EBRD loans.

This close alignment between E2C2 and Banking and exclusive focus on a ABI funding target quite likely contributes to resource allocation to support EBRD lending broadly rather than minimizing GHG emissions, more specifically. Because the avoidance of GHGs, or reductions in climate vulnerability are public goods, they are not captured in the returns to EBRD, and the alignment of ABI volumes with climate change impacts breaks down. This conclusion is supported by the large amounts of concessional funding that are allocated to SEFFs and MEI EE sovereign loans for project preparation, even though these outputs tend to be less effective means of reducing GHGs, relative to Industrial EE and RE. Similarly, there is a heavy emphasis in financial terms on project preparation as compared to policy advice and institutional capacity building within governments to manage climate change programs and develop environments that support private sector financing

Further problems are arising as banking departments are also engaged in concessionary fund raising; as the purpose of such fund raising goes beyond CI such funds may not be consolidated in the CI database. Often it is not possible to map TCs to projects, making it difficult to determine how much resources are being allocated to different CI projects and programs. Incomplete data and the absence of tools such as country climate change plans and CBA make it difficult to determine if these funds are being allocated in a coherent manner at the project level. These concerns are compounded by a donor funding base that is highly fragmented, making reporting arrangements difficult. Further concerns arise from the lack of alignment between the reports to donors which are couched in terms of outputs, outcomes and impacts; and board documents that focus on TI and the financial soundness of EBRD's balance sheet.

Given this result, and in line with the recently issued G20 Report<sup>xxiv</sup>, E2C2 could be given a mandate to take the lead within EBRD on climate change in COOs with an objective of minimising GHGs in COOs and developing COO capacity to manage adaptation, and be made responsible for managing associated third party concessional funds. In line with the G20 Report, the focus of the operations could be directed to achieving these goals by maximising opportunities to mobilise private finance from EBRD and other sources. There would be limited downside for EBRD in terms of meeting its TI and financial objectives, and it could potentially dramatically increase opportunities for E2C2 to develop pipelines of bankable projects for EBRD's core banking operations, as demonstrated by the recent increase in the GrCF from €327mn by an additional €928mn within a 2 year period. Such an arrangement has the potential to improve the quality of reports to the Board and donors. Reports can be prepared that provide information on allocation of concessional resources and consequential progress achieving specific climate change results, relative to country needs, rather than TIs and commercial performance of the GET ABI portfolio, which focus on means that are not related to climate outcomes in countries.

To help realize this potential, and provide a unified management structure for the climate related concessional funds, E2C2's role as major fund raiser for climate change concessionary funds could be formalised by providing it with responsibility to manage concessional climate funds. Ideally, these funds would be pooled by developing a small set of standardised multi-country, multi-sector funds for the

purposes of designing climate change programs, and reporting on results to EBRD's Board and Management and the donors. The pooling of funds would offer opportunities for testing, targeting and scaling up blended finance as required. E2C2 could be designated as manager of an over-arching Climate Change Concessional Fund, and regularly report to Board on progress achieving GHG and adaptation targets by country.

Closely related to funding is the issue of staffing and allocation of responsibilities. It can be argued that to reach scale, and ensure funds are properly allocated and efficiently utilised; E2C2 staff should be focused more on developing and monitoring programs rather than projects. Under this arrangement, greater emphasis could be placed on strengthening the policy environment and project designs where outcomes, outputs, baselines, control groups, theories of change, and the monitoring and evaluation components are clearly defined. These designs can specifically link the dispersal of concessional funds with the collection and analysis of ex post data, relative to ex ante estimates, and achievement of project objectives.

There is an issue about whether staff should be located at HQ, or in ROs, given the need to deepen relations with government officials, and local representatives of IFIs, Climate Funds and local financiers. E2C2's current centralised structure could potentially be reviewed with a view to identifying opportunities for transferring more staff to ROs. There may be opportunities to rebalance the organization structure of E2C2 so that similar functions are grouped such as: Policy Products, Country Analytics and MRV; Direct Finance, GEFs and Intermediated Green Finance; and Climate Finance and EU and Bilateral Green Finance. Within Banking there are opportunities to recruit additional staff with expertise in climate change and sustainability who can take over some of the project preparation work currently undertaken by E2C2. Linkages need to be established with P&E on RE, the new Sustainable Infrastructure Advisory team on PPPs, Local Currency and Capital Markets Unit on LCY bond issuances, and Treasury on the sourcing of LCY.

#### *4.2.10 Strengthen the Management Information System*

**The reliance on third party donor finance makes the effectiveness of the MIS system for concessional finance a critical feature of CI operations.** In 2014, Management prepared a paper for the Board on Future Directions for Grant Co-Financing (BDS15-079), which noted the growth and fragmentation of donor funds and the need for an effective MIS. The paper indicated that donor visibility and high quality reporting would be key components of its agenda as EBRD enhanced its reporting on results at both project and aggregate levels, with clearer links to the Bank's overarching strategies.

**The validity of the conclusions of the Grant Co-Financing review are even more important today due to the escalating risks of climate change and the growth in funds from agencies such as the GCF, which create significant reputational risks for the Bank if not managed properly.** As a result, the TCRS needs to be made effective, or an alternative solution put in place, so that the quality of the information systems for all CI sources of funding is brought up to a reasonable standard. Due to the critical need for reliable information on the concessional funds, both for measuring EBRD's project performance, and reporting to donors, it does not seem to be feasible or desirable to address this issue by waiting for Project Monarch to become operational.

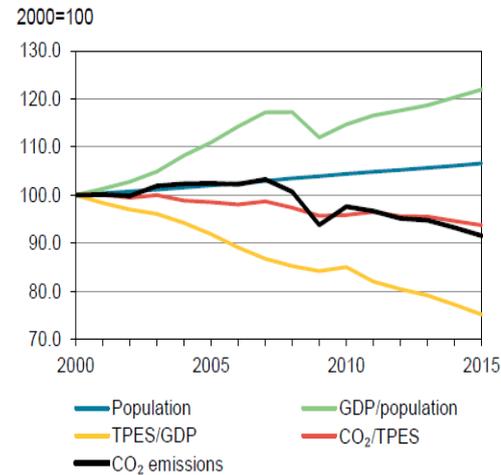
**Underpinning this initiative, the CI databases for the various financial instruments need to be integrated so reports can be prepared by impacts, outcomes and outputs at the country, program and project level.** Additional data needs to be collected on variables such as vulnerability, country carbon budgets, country institutional capacity, policy interventions, expected and actual amounts of GHGs avoided, unit costs of GHG avoided or improvements in resilience, application of TC and Non-TC,

disbursements and cancellations of ABI, and sources of co-finance (public and private). Indicators need to be developed to better capture countries' vulnerability and capacity to adapt to climate change. Procedures need to be established to ensure data is independently validated and programs and projects are capable of being evaluated in accordance with expected impacts.

## Annex 1: Climate Change - Global Overview<sup>xxv</sup>

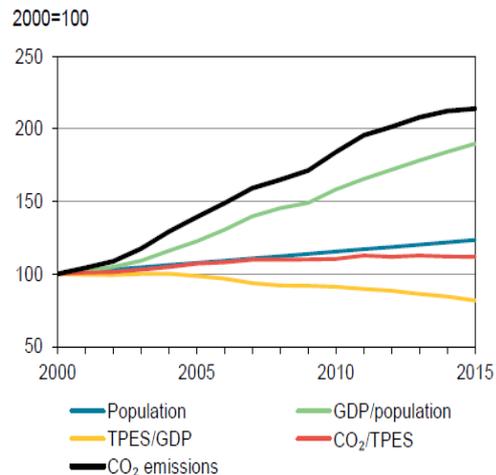
On a global level, International Energy Agency (IEA) reported in 2017 that CO<sub>2</sub> emissions grew by 40% between 2000 and 2015. Rising population growth and GDP per capita are outweighing improvements in efficiency of energy use, as defined by total primary energy supply (TPES)/GDP, particularly in the Non-Annex 1 countries<sup>xxvi</sup>.

Figure A1.1: Annex I CO<sub>2</sub> emissions and drivers (Kaya decomposition)<sup>14</sup>, 2000 - 2015



Source: IEA, 2017

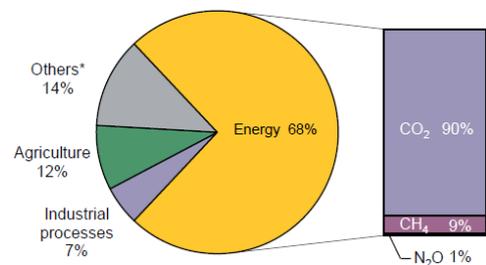
Figure A1.2: Non-Annex I CO<sub>2</sub> emissions and drivers (Kaya decomposition)<sup>14</sup>, 1990 - 2015



Source: IEA, 2017

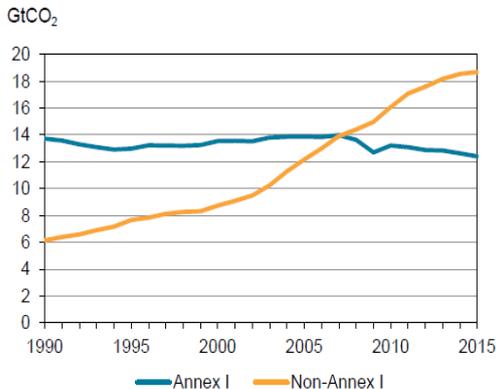
Energy represents by far the largest source of GHG emissions (68%). Other sectors include agriculture (12%), mainly through livestock and rice production, and industrial processes unrelated to energy production (7%).

Figure A1.3. Estimated shares of global GHG, 2014



Source: IEA, 2017

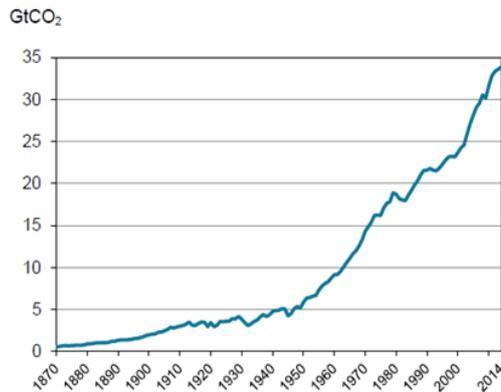
Figure A1.4. Regional CO<sub>2</sub> emissions, 1990-2015



Source: IEA, 2017

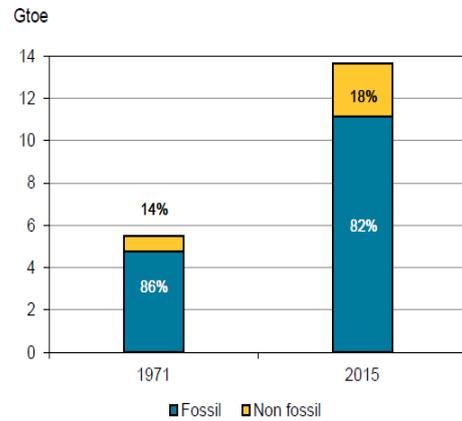
Global energy demand as measured by TPES increased by almost 150% between 1971 and 2015, mainly through the use of fossil fuels.

Figure A1.5: Trend in CO2 emissions from fossil fuel combustion, 1870-2014



Source: IEA, 2017

Figure A1.6: World primary energy supply

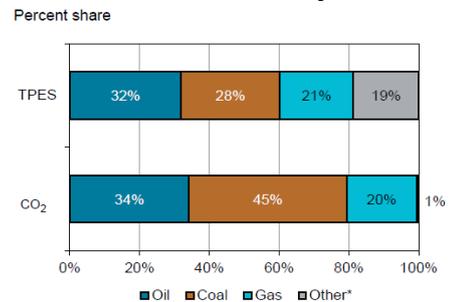


Source: IEA, 2017

Despite the growth of non-fossil energy, especially in electricity generation where it now accounts for 34% of the global figure (including nuclear, hydropower and other renewable sources), the share of fossil fuels within the world energy supply is relatively unchanged over the past 4 decades. In 2015, fossil sources accounted for 82% of the global TPES.

Coal is the primary source of GHGs. While it represented 28% of the world TPES in 2015, it accounted for 45% of the global CO<sub>2</sub> emissions due to its heavy carbon content per unit of energy released, being double the level of emissions from gas.

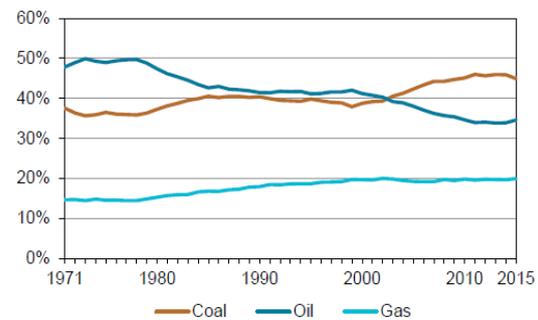
Figure A1.7: World primary energy supply and CO2 emissions: shares by fuel in 2015



\* Other includes nuclear, hydro, geothermal, solar, tide, wind, biofuels and waste.

Source: IEA, 2017

Figure A1.8: Fuel shares in global CO2 emissions

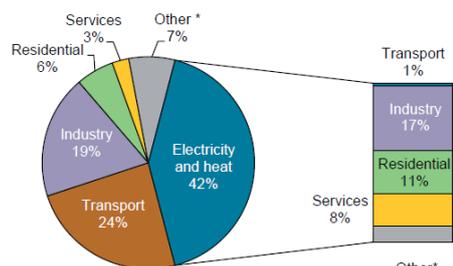


Source: IEA, 2017

2015 was the first year since the 1990s in which IEA data did not show a global increase in CO<sub>2</sub> emissions from fuel combustion despite continued growth in global economy. The global emissions trend was driven by increases from oil and natural gas in non-Annex I countries, compensated by decreased emissions from coal, mainly in Annex I countries.

Two sectors produced two-thirds of global CO<sub>2</sub> emissions from fuel combustion in 2015: electricity and heat generation (42%), and transport (24%).

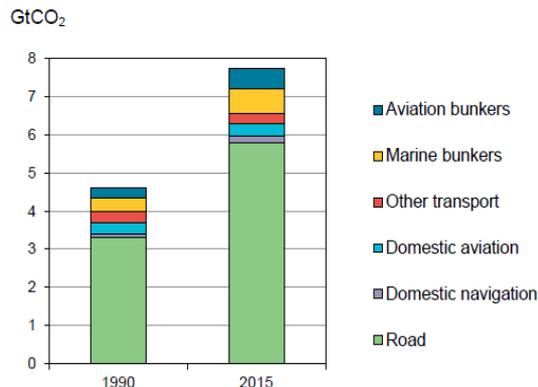
Figure A1.9: World CO2 emissions from fuel combustion by sector, 2015



The graph also shows allocation of electricity and heat to end-use sectors.  
 \* Other includes agriculture/forestry, fishing, energy industries other than electricity and heat generation, and other emissions not specified elsewhere.

Source: IEA, 2017

Figure A1.10: CO2 emissions from transport, 1990-2015



Source: IEA, 2017

The level of global emissions from electricity generation increased by 45% from 2000-2015. Trends at a regional level differ. In China, Europe and North America there are signs that emissions/unit of energy are starting to decline due to improvements in: (i) the thermal efficiency of generation; (ii) the CO2 intensity of the fossil fuel mix (reflecting a shift from coal towards natural gas), and (iii) an increase in the share of electricity output from non-emitting sources such as solar and wind. These efficiency improvements have been negligible compared to the increase in emissions from electricity generation, driven primarily by increased output. This was particularly notable in China, where total output has increased fourfold since 2000, and in the remainder of Asia, where output more than doubled. In both of these regions, most of the increased output was met through carbon intensive coal-fired plants.

For transport, the 68% increase since 1990 was led by increasing emissions from the road sector, which accounted for three quarters of transport emissions in 2015. Despite efforts to limit emissions from international transport, between 1990 and 2015 emissions from marine and aviation bunkers grew even faster than those from road (marine: +77% aviation: +105%).

---

## Annex 2: Climate Funds

### 1. Overview

Climate funds have provided a platform for the implementation of the climate change agenda of the United Nations Framework Convention on Climate Change (UNFCCC) since its establishment in 1992.

### 2. Global Environment Facility

The Global Environment Facility (GEF) was established in October 1991 as an USD1.0bn pilot program in the World Bank to assist in the protection of the global environment and to promote environmental sustainable development. GEF provided grants and concessional funding to cover the "incremental" or additional costs associated with transforming a project with national benefits into one with global environmental benefits. The United Nations Development Programme (UNDP), the United Nations Environment Program, and the World Bank Group (WBG) were the three initial partners implementing GEF projects.

In 1992, at the Rio Earth Summit, GEF was restructured and moved out of the World Bank system to become a permanent, separate institution. The decision to make GEF an independent organization enhanced the involvement of developing countries in the decision-making process and in implementation of the projects. Since 1994, the World Bank has served as the Trustee of the GEF Trust Fund and provided administrative services. In 1998, the GEF Council expanded beyond the initial 3 Implementing Agencies, including the International Finance Corporation, to broaden its ability to enable innovative financing mechanisms and better leverage private sector investment.

GEF focuses on 7 main areas, consisting of biodiversity, climate change (mitigation and adaptation), chemicals, international waters, land degradation, sustainable forest management, and Ozone layer depletion. Climate change actions focus on:

- **Mitigation:** Reducing or avoiding greenhouse gas emissions in the areas of renewable energy; energy efficiency; sustainable transport; and management of land use, land-use change, and forestry.
- **Adaptation:** Aiming at developing countries to become climate-resilient by promoting immediate and longer-term adaptation measures in development policies, plans, programs, projects, and actions

### 3. Climate Investment Funds

Climate Investment Funds (CIF) was established in 2008 by the WBG and it is providing resources to developing and middle income countries to address climate change and reduce their greenhouse gas (GHG) emissions. The CIF is comprised of 2 sub funds: the Strategic Climate Fund and the Clean Technology Fund (CTF). The WBG serves as the Trustee for the CIF. CIF programs focus on the themes of climate resilience, energy and forests. CIF has taken a leading role in the advancement of renewable technologies, including geothermal, hydropower, bio-energy, wind and concentrated solar power.

CIF channels funding through 5 Multilateral Development Banks (MDBs): the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank and WBG. The MDBs disburse CIF resources to support implementation of country-led programs and investments.

---

CIF offers a wide range of financial instruments including debt, equity, grants and guarantees. MDB involvement helps CIF mitigate risk and encourages other actors to participate, facilitating the mobilization of co-financing and harmonization of policy support. The CIF leverages finance from the MDBs, and from other development agencies (including UN agencies and bilateral development agencies) and the private sector, through the use of blended development finance. CIF funding to private sector operations can be channelled through local financial institutions or invested directly into real sector companies. CIF financial support is often accompanied by a technical assistance component targeting the enabling environment and capacity building for local institutions and companies.

#### **4. Green Climate Fund**

Green Climate Fund (GCF) was established within the framework of the UNFCCC in 2010 to assist developing countries to introduce mitigation and adaptation practices to counter climate change. The objective of the GCF is to "support projects, programmes, policies and other activities in developing country parties using thematic funding windows". The GCF is the centrepiece of international efforts to raise Climate Finance, and UNFCCC has a target of raising \$100bn a year by 2020.

GCF aims to catalyse climate finance to invest in low-emission and climate-resilient development. The GCF uses public investment to stimulate private finance through the use of concessional grants, loans, equity or guarantees. GCF's activities are aligned with the priorities of developing countries through the principle of country ownership, and it has established a direct access window so that national and sub-national organisations can receive funding directly, rather than through international intermediaries. Developing countries appoint a National Designated Authority that act as the interface between their government and GCF, and it must approve all GCF project activities within the country. GCF provides funds to governments to prepare readiness assessments, and it has a project preparation facility which supports the development of proposals by Accredited Entities.

Accredited entities can be private or public, non-governmental, sub-national, national, regional or international, as long as they meet the standards of the GCF. Accredited Entities carry out a range of activities that usually include the development of funding proposals and the management and monitoring of projects and programmes. All of the MDBs are accredited entities of the GCF.

## Annex 3: Previous Evaluations and Audits of Sustainable Initiatives

This appendix provides a review of the main findings of evaluations relevant to the Sustainable Initiatives program prepared by EVD, Internal Audit Department, and external agencies such as OECD and World Resource Institute.

### 1. EvD Evaluations

#### Sustainable Energy Initiative

In 2010 EVD evaluated how well EBRD has implemented the SE1 objectives through its investment operations. EVD noted the E2C2 team's approach relied upon a market based business case, rather than compliance with external standards, even though there were EU environmental directives on energy efficiency (EE) in place. The evaluation highlighted the important role played by E2C2 in rolling out the SE1 program. The main activity of the E2C2 team had been to define and support the development of SEI activity within each sector. Transaction responsibility remained with the banking teams, with E2C2 providing support in areas such as policy, markets, and technical solutions and managing TC. Based on the success of this model, EvD recommended that a "business case / market driven" approach be used for all environmental and climate change investment opportunities. Going forward, EVD recommended that:

- Project monitoring and accounting should be based on results achieved, as measured by: (i) actual disbursement made, (ii) energy savings achieved, and (II) carbon reductions achieved;
- E2C2 activities should be fully embedded into the new Energy Operations Strategy and E2C2 be made responsible for project monitoring for EE and climate change;
- As SEI went beyond a single sector and cut across the Bank it was proposed there be a SEI Policy above the sector strategies;
- EBRD should prepare a policy document on the use of subsidies – when and where they should be used as they did not seem to be required for the SEI projects evaluated; and
- EBRD should introduce carbon accounting and all its operations be made carbon neutral.

#### Mid-Size Sustainable Energy Financing Facility (MidSEFF)

In March 2015 EVD prepared an evaluation of the MidSEF program in Turkey (EVD ID: PE14-583). MidSEFF was a €400mn debt facility and the first tranche was approved by the Board in December 2010 and the second tranche in 2011. MidSEFF provided loans to participating financial institutions (PFIs) in Turkey for on-lending to mid-sized sustainable energy projects of €10-30mn. European Investment Bank (EIB) was a co-financier with EBRD on a 50:50 basis. EBRD was responsible for project origination, management and monitoring and reporting. The Facility was supported with €2.5mn Technical Cooperation (TC) grants funded by the European Union (EU) to cover the costs of a project consultant (PC). The PC provided capacity building and implementation support to PFIs and sub-borrowers and ensured EBRD's Environmental and Social Policy (ESP) was reflected in subproject appraisal and monitoring. The Facility received further TC of €0.95mn to support the development of a carbon market in Turkey.

At approval of MidSEFF, EBRD had already approved 14 distinct SEFFs covering 16 countries of operation including the Turkish Private Sector Sustainable Energy Finance facility (TurSEFF), approved in

2010. The MidSEFF provided EBRD with the ability to expand into the market segment for mid-sized investments that were too large for the €5mn project size cap of TurSEFF, yet were too small for direct stand-alone project financing from EBRD. MidSEFF offered financing for mid-sized investments of €10-40mn in Renewable Energy (RE), EE and waste to energy projects. MidSEFF loans outside this range were considered on a case-by-case basis and the maximum subproject size was €50mn.

The MidSEFF differed from previous EBRD SEFFs in a number of other important respects. **MidSEFF did not provide any incentive payments to PFIs or subproject sponsors.** MidSEFF was the first SEFF to require subprojects (not only the PFIs) to comply with EBRD's ESP, **reducing the demands on Environment & Sustainability Department (ESD)** to review, approve and monitor each subproject. As SEFFs rely on intermediated financing, they normally result in EBRD delegating responsibility for subproject appraisal and monitoring to PFIs especially for environmental and social risk management under **performance requirement (ix)** of EBRD's ESP.

At approval, it was envisaged that MidSEFF's transition impact would be achieved through 3 main channels: (i) demonstration of new products through acceleration and scale-up of sustainable energy investments, including diversification of technologies, (ii) demonstration of new financing mechanisms through the expansion and development of carbon markets, and (iii) transfer of skills through the upgrade of environmental standards and capacity building for financing renewable energy investments.

Four PFIs on-lent nearly €300mn to 27 sustainable energy projects in renewable energy and energy efficiency. The remaining €100mn was set aside for direct risk participation in selected subprojects through funded risk participation agreements with PFIs and none of this facility was utilised. Total lending was allocated to the following types of sub-projects: hydro (42%); wind (36%); EE (12%); geothermal (8%); and waste-to-energy (2%). The transition impact monitoring benchmarks indicated an expected annual production of 1.0TWh of electricity from renewable sources under MidSEFF, and an annual CO2 emission reduction of 800kt. **The actual amount of energy generated annually was about 1.6TWh, almost 60% above the benchmark. There appeared to be considerable potential for further growth in the future using solar technology.**

The transition impact monitoring benchmark implied there was an expectation the amount of CO2 emission reduction per unit of electricity generated / saved would be 0.8 tonnes per MWh. The actual figures reported were in the region of 0.55 t/MWh for hydro and geothermal and for 2 out of the 3 EE subprojects, 0.6 t/MWh for wind and 0.73 t/MWh for waste-to-energy. **Only 1 of the 3 EE projects achieved a CO2 saving per unit of electricity that exceeded the level of 0.8 t/MWh target presented in the monitoring benchmark. As a result, there appeared to be a significant misalignment between the benchmark targets for electricity generation versus the target for CO2 emission reduction.**

**EvD's overall rating for the project was "Highly Successful."** MidSEFF was a major contributor to increased RE capacity in Turkey, particularly for geothermal and wind, and it mobilised substantial finance from EIB. The project reflected the government's EE and RE objectives, it achieved almost all of EBRD's objectives, and it performed well in terms of financial returns. The objectives not achieved related to the monetisation of carbon credits and a direct risk participation facility that was not utilised.

The inability to monetize the carbon credits was due to an incomplete Monitoring Reporting and Verification (MRV) regulatory framework for carbon credits in Turkey and low international carbon prices. The low carbon prices was due to a combination of oversupply of carbon credits (mainly from China and India) and lack of international demand for carbon credits because of the absence of agreement on emission reduction targets at the international level.

The direct risk participation funds were provided by EBRD as a hedge against the market not being ready for MidSEFF. EBRD would invest directly in projects to demonstrate the bankability and potential of sustainable energy projects to the PBs. In practice, the PFIs were eager to disburse the MidSEFF funds which featured attractive financial terms as evidenced by the high disbursement rate for the project finance component of the facility. The subproject sponsors were able to work with familiar Turkish banks, often long-term partners, rather than EBRD which requires significantly more in terms of due diligence and documentation.

The contribution of policy dialogue to the success of the program was difficult to determine due to the number of sustainable energy projects and associated TCs that had been implemented by EBRD and the wide range of areas where it was providing advice. EBRD was advising the government on how to realise Energy Service Company (ESCO) market potential, scale up waste to energy, recycle glass, develop the geothermal market, prepare a RE Action Plan, assess impacts of climate change, model carbon emissions, and develop a National Appropriate Mitigation Actions plan and a National EE Action Plan (NEEAP). EBRD was in discussions with the government on the preparation of a Sustainable Energy Action Plan (SEAP) that would frame EBRD's activities in Turkey and provide a roadmap for cooperation with the government. Future areas of possible cooperation included a **renewable investment fund and project risk insurance**.

**The role of the PC was critical**, particularly in regard to the quality and frequency of monitoring, reporting and general follow-up for the facility was cited by various stakeholders as one of the key factors underpinning the success of the facility. The PC was required to measure the EE improvements and ensure the objectives and requirements of the facility were met, **monitored during implementation** and reported to EBRD on a monthly and quarterly basis through cumulative pipeline and facility reports. The PC was successful in developing capacity within the PFIs in integrating environmental and social impact monitoring procedures in their subproject performance monitoring arrangements. Similar to other SEFFs, the scope of the PC's role could have been extended to include an outreach and marketing component to inform potential sub-borrowers about the facility, and create a project pipeline.

**The study confirmed that incentives were not needed for MidSEFF to succeed** as the government was already providing support for RE projects through its Feed in Tariff (FIT). **Subsidies are typically only required to motivate smaller project sponsors to undertake EE improvements in residences or small businesses**. The government also offered a number of other incentives for RE projects such as a grant programme that offered reimbursement of the cost of EE audits and 30% of the investments upon verification of targets being met after one year. In general, the MidSEFF participants did not apply for these incentives.

**The inclusion of EE projects in MidSEFF was of limited value**, as the small size of these types of investments was below the minimum project size of the facility, the sponsors could afford to finance these types of projects themselves, and the energy saving per unit of investment was relatively modest compared with the RE subprojects.

EVD found **there was a limited market for local currency lending in sustainable energy** for the following reasons: (i) **most of the project equipment was imported and foreign currency was needed**; (ii) **the FIT payments are calculated in US dollars** and therefore project sponsors preferred to take loans in foreign currency; and (iii) since most of the **projects were of longer duration**, the project sponsors did not want to be subject to the volatility of the Lira.

## Special Study on the Bank's Sustainable Energy Financing Facilities (SEFFs)

In November 2015, EVD issued a study that concluded the SEFFs had been successful achieving their financial and technical benchmarks. SEFF objectives were found to be consistent with the needs of the countries. Each SEFF was informed by a market demand study. There had been a tendency to adopt benchmarks relating to the long-term impact of creating a self-sustaining market for EE and RE financing, but there was no mechanism for continuing to monitor these indicators once a SEFF was finished.

At the implementation level, SEFFs were found to be successful in achieving their financial and technical benchmarks. Based on case studies and previous evaluations, the achievement of quantitative objectives was considered to be very good, with completed SEFFs achieving almost all of their targets and even exceeding them in some cases. Incentive payments were paid primarily to sub-borrowers, although in some cases they were paid to PFIs. **Unlike PFI incentive payments, there did not appear to be a decreasing trend in the levels of sub-borrower incentives through time. There was no clear evidence that incentives were required to support SEFFs, and no clear link between the subsidies and the market barriers they were meant to address. Several SEFFs had been successful without relying on incentive payments.** There had been a trend of increasing "smartness" in incentives to sub-borrowers (i.e. linking to quantitative aspects of project performance), and phasing out PFI incentives in countries where there had been a succession of facilities.

The inclusion of TC through project consultants proved to be instrumental to the achievement of SEFF objectives. Activities such as conducting energy audits, providing training to PFIs, marketing and intelligence gathering, had enabled efficient establishment of the facilities and the generation of project pipelines. **This support had been even more critical for SEFFs that did not include the provision of incentives, whereby the value added from the project consultant was necessary to overcome market barriers.** Project consultants had played a major role in monitoring, delivering periodic (usually quarterly) reports on operational parameters to EBRD teams. The lack of a uniform monitoring system across SEFFs was an area that needed improvement and the launch of a new Management Information System (MIS) in 2015 could help address this issue. **Policy dialogue had been an important component of the Bank's work alongside SEFFs, and had enhanced leverage and long-term impact. However, there had been a lack of reporting and recognition of the policy work done.**

Some PFIs felt that when the SEFF came to an end they might lack sufficient capabilities to continue sustainable energy lending without the technical support of the project consultants. **There were few examples of continued EE and RE lending by PFIs beyond or outside of the SEFFs.** The evaluation recommended that a more programmatic approach be introduced (ie a shift from implementing stand-alone projects, towards formalised framework support for programme level activities). With the recent introduction of results frameworks in country strategies, baselines should be established and targets set, monitored and reported at the country level. Individual SEFFs could then establish their contribution to meeting these targets. Subsequent phases of SEFFs should explore more creative uses of TC funds, such as using a local consulting firm to access SEFF TC support to originate and develop SEFF sub-projects.

As a result of these findings and the new challenges created by GET, the SEFF model was reconfigured to a new EBRD GEFF model that adopted a programmatic approach focusing on addressing transition gaps on a wider scale.

### Four Wind Energy Projects

**In February 2016 EvD prepared an evaluation of 4 projects located in Bulgaria, Estonia, Poland and 2 in Mongolia. Two of the projects were financed with debt, 2 with equity and 1 received both debt and**

equity. The projects were evaluated to determine if there were common design, execution and performance issues in the projects that could provide lessons for future wind projects. **All 4 projects were affected by an uncertain and shifting policy and regulatory environment.** Generally, the policy and regulatory context was relatively well defined at project approval and during implementation, providing support to RE. **However all 4 governments subsequently sought to limit their support for the sector, resulting in a much less favourable operational environment following project approval.** Other common themes included the following:

- There had been a long period of policy and regulatory uncertainty in 3 EU countries. This uncertainty substantially reduced in July 2014, when EU Guidelines on State Aid for Environmental Protection and Energy provided a clear reference for a **new policy based on auction system**;
- Most projects did not achieve TI benchmarks (outputs and outcomes);
- Policy dialogue strengthened outcomes, but apart from Mongolia, this activity was largely an unintended activity. **Some officials saw this activity as being self-serving, particularly if EBRD was making an investment**;
- Most projects under-performed financially due to problems with the tariff structure, and in Bulgaria and Mongolia FiT levels were too low, and in Poland Green Certificate prices were too low, making tariffs unaffordable and non-competitive;
- The development of alternative RE technologies (e.g. solar, biomass), combined with inadequate pricing of their operations, adversely affected wind projects in countries such as Bulgaria and Estonia;
- **Regulatory officials had been offered TC capacity building support, but were concerned on occasion that it conflicted with their regulatory responsibilities**;

The principal findings were as follows:

- None of the RE projects would have been financially viable without a FiT;
- RE policies and regulations had been in flux as investment costs had fallen and governments had sought to reduce the cost of support;
- EU accession countries that are close to reaching their 2020 RE targets were most likely to retroactively change regulations and FiT levels;
- **EBRD's policy dialogue was in most cases not specifically planned, and in many cases was initiated to protect the interests of Clients (as well as its own interests), and tended to be most successful at the project level in areas such as designing Power Purchase Agreements (PPA)**;
- Ultimately, it was the EU rather than the MDBs that provided clarity on the RE policy that was accepted in the 3 accession countries;
- All projects were affected by risks such as unanticipated regulatory changes, development of new RE technologies, changes across border electricity connections; and poor creditworthiness of transmission companies;

The study recommended that EBRD coordinate closely with the EU on policy, clearly identify policy dialogue needs upfront; clearly identify project risks associated with RE projects in Board documents,

particularly in regard to assumptions underpinning FiT projections; and consider twinning arrangements as an alternative or complement to TC.

### Special Study on EBRD's Use of Subsidies

In 2017 EvD prepared an evaluation of subsidies that noted the volume of subsidies used by EBRD had increased substantially over the past decade. Growth was due to incremental donor support in the wake of the financial crisis; and EBRD's expansion into new operational areas such as: climate change; clean energy; and resource efficiency; where concessional funding is the norm. Subsidies are defined as non-TC grants, which are structured as: (i) investment grants; (ii) concessional loans; (iii) incentives; and (iv) risk sharing. The study was based on an analysis of signed non-TC grants in the period 2010 to 2014.

The study noted the ultimate objective of subsidies is to transform governance principles and institutions in a way that enables private operators to invest in the areas that were previously deemed unattractive on a financially sustainable basis. Therefore, a range of principles are required to shape international financial institutions' investments in a way that delivers gradual reduction in the use of subsidies over time. Guidelines developed by the Office of the Chief Economist in 2008 for non-TC grants from EBRD's Shareholder Special Fund required subsidies to have an economic justification, usually related to unpriced externalities or other market gaps, to be no greater than necessary, and to be temporary.

The guidelines were reviewed in 2012 as part of the Grant Co-financing Strategic Review, which recommended that EBRD apply these principles to all non-TC grants, with associated requirements for initial specification of their intended results and subsequent reporting within those results frameworks. These guidelines do not apply to parallel co-financing or associated grants not managed by EBRD, such as those from European Structural and Investment Funds. Following this review, EBRD became compliant with a joint 2012 agreement amongst multilateral development banks<sup>xxvii</sup> that they abide by principles to support sustainable private sector operations. These include: **(1) additionality; (2) crowding in; (3) commercial sustainability; (4) reinforcing markets; and (5) promoting high standards.** These principles were subsequently used as a basis for developing development financial institution guidance for investment concessional finance.

In parallel to these changes there were significant reforms in the provision of state (or regional) aid by the main shareholder countries, especially by the EU and its member states. These reforms were making it more difficult to access subsidies, and there was an increase in the use of blended (hybrid) financing compared to the pure grant financing of investment projects. As European Structural and Investment Funds represented a significant share of non-TC grants in some countries of operations, and EU's concessional funding through the Neighbourhood Investment Facility is also significant, the awareness of the new rules and principles for use of financial instruments is critical for planning further operations with non-TC grants.

**Investment grants are primarily made to public sector clients; concessional loans are balanced across private and public clients, including PFIs; while incentives and risk sharing are offered to PFIs and individual sub-borrowers.** Concessional loans have increased markedly (with large contributions from the Global Environment Facility and Climate Investment Funds), and so had risk sharing, while investment grants and incentive payments had not increased. While EBRD usually determined the amounts of subsidies in its operations, some decisions, particularly on large European Structural and Investment Fund grants in municipal infrastructure and transport sectors were made directly by the donor.

**There is an inherent difficulty obtaining evidence about the effectiveness (and efficiency) of most of EBRD's subsidies.** Assessing their effectiveness requires counter-factuals – whether the operation

might have been implemented as successfully with less or no subsidy – rather than specifying ex-ante the subsidies' intended effects and collecting ex-post evidence of those effects. EBRD was engaged in strengthening results frameworks and this provided an opportunity to better isolate the use and intended purpose of subsidies. **Case studies of comparator projects in the same sector could usefully explore differences between subsidised and non-subsidised structures, their effects and sustainability. Comparison with projects implemented by other international financial institutions in similar context might be included in one of the cases.**

### Energy Sector Strategy (ESS)

In 2018 EvD evaluated the ESS 2013-2018 which focused on supply side energy initiatives. The study noted there had been significant changes over the evaluation period in terms of COOs; new programmes such as GET; and new strategic planning and operational tools (Country Strategies; Transition Qualities; results architecture; commitment to enhanced policy dialogue). ESS operations mobilised EBRD financing of €4.5bn in 84 operations (€1.7bn natural resources and €2.8bn Power and Energy) over the evaluation period. Grant financing allocated to natural resources and EE was substantial, with €42mn being allocated to TC and policy dialogue, and €500mn to non-TC financing. The evaluation confirmed that EE and low carbon transition were primary ESS thematic priorities across most country strategies prepared during the period. Policy dialogue to enhance EE legislation had occurred in several countries such as Georgia. The main beneficiaries of EBRD financing were Egypt, Jordan, Poland and Tajikistan. Data supplied by management showed a slight downward trend in annual EE gains under ESS, whereas RE approvals were relatively flat. The ESS was not able to establish a clear link between financing at the sector level and achievement of objectives and TI at the country level.

### Transport Sector Strategy (TSS)

EVD prepared an evaluation of the TSS 2013-2018 in 2018 which found it prioritized transport-related SEI components of major infrastructure and public transport. The transport sector accounts for about 25% of energy used in the EBRD region and energy use is growing faster than any other sector. Activities to promote transport EE were introduced in SEI2 in 2009. These investments included more efficient rolling stock in rail transport and air and sea port facility modernisation. From 2012 onwards, under SEI3 Transport widened the EE portfolio to include shipping and developed policy instruments to support sustainable transport planning and practices. Similar to the ESS, the TSS was not able to establish a clear link between EBRD financing at the sector level and achievement of objectives and TI at the country level.

## 2. Internal Audits

### Environmental and Social Appraisal and Monitoring arrangements

In 2012 EBRD's Internal Audit Department (IAD) prepared a review of its Environmental and Social Appraisal and Monitoring arrangements. The main objective of the audit was to assess the adequacy of, and adherence to, the policies, procedures and controls relative to the Bank's appraisal and monitoring of environmental and social issues in its operations. The study prepared a review of:

- the procedures and controls covering the implementation of the Environmental & Social Policy;
- the completeness of communications to reviewers and decision makers with respect to the outcome of environmental and social appraisal;
- the appropriateness of the Bank's monitoring of environmental and social requirements embedded in its Banking operations.

EBRD's environmental and social mandate is outlined in its Environmental and Social Policy (ESP) and elaborated in the Environmental and Social Procedures which were originally approved by the Operations Committee in 2008 and updated in 2010. Each Bank project is required to be subject to environmental and social appraisal to assess inherent risk and establish whether the project should be financed. The appraisal process normally leads to the preparation of an Environmental & Social Action Plan (ESAP) by environmental and social specialists either within ESD itself or external to the Bank. The purpose of the ESAP is to develop a programme of corrective actions which the client should execute to comply with the ESP. The ESAP is appended to the financing agreement and is legally binding on the client.

The monitoring of the Bank's E&S requirements in active Banking operations has 2 objectives:

- to ensure that any ESP requirements included in the legal agreements are being complied with by clients;
- to monitor the on-going environmental and social impacts and issues associated with the project and the effectiveness of mitigation measures.

ESD is responsible for monitoring all active Banking operations through a combination of client reporting, monitoring visits and environmental and social audits. The ESD Specialist responsible for a project's environmental and social assessment will generally be responsible for subsequent monitoring. The Operation team has overall responsibility for the project and is responsible for preparation of periodic monitoring reports in the Project Monitoring Module (PMM) which include environmental and social sections. PMM reports are distributed to ESD for information. ESD is required to prepare and agree with clients prior to Final Review an Environmental and Social Monitoring Plan (ESMP) that is appropriate to the project's risks and impacts. Among other matters, the ESMP sets out the number and/or frequency of site visits deemed necessary to ensure the project is being implemented in line with the agreed requirements.

The review recommended that ESD streamline its processes; ensure staff received mandatory training on how to implement the ESP; due diligence plans are prepared and implementation documented, ESD signs off on draft legal documents, strengthen project disclosure requirements, strengthen the monitoring arrangements by establishing a centralised record to track the status of all projects' compliance with their ESAPs; and strengthen procedures to approve and manage changes in projects and their E&S impacts.

### **Sustainable Resources Initiative (SRI)**

In June 2015 IAD issued a report on SRI. The scope of the audit was the operational risks to EBRD (particularly reputational risk) in the event of material inaccuracies in the assessment and reporting of information relating to the SRI. The objective of the audit was to assess the robustness of the processes established by the Bank to:

- attribute investments to the SRI;
- estimate and verify SRI data (i.e. energy savings, emission/waste reductions, water savings);
- monitor the implementation and performance of SRI projects against their relevant objectives;
- report SRI-related information to senior management, the Board of Directors, Donors, and the general public.

The audit covered the period January 2013 to December 2014. Within this period, EBRD signed 324 projects with SEI components, representing €5.4bn of SEI investment and a reduction in carbon emissions estimated at about 14mn tonnes CO<sub>2</sub>/year. These results were mainly driven by projects in the

Power and Energy sector (32% of SEI investments; 61% of carbon emission reductions), SEFFs (18% of SEI investments; 11% of carbon emission reductions) and the Transport sector (13% of SEI investments; 5% of carbon emission reductions). SRI was launched in May 2013 to replace the SEI. Under this program, in 2013 EBRD signed 32 projects with estimated water savings of 11mn m<sup>3</sup>/year and waste savings of 480,000 tonnes/year. In 2014 there were 38 projects with estimated water savings of 10.5mn m<sup>3</sup>/year and waste savings of 388,669 tonnes/year.

E2C2 coordinated the SRI and it had a broad range of responsibilities, ranging from identifying **energy efficiency saving opportunities** in the project pipeline projects through to the origination of deals. The team was responsible for reporting on SRI financing and SRI data (i.e. energy savings, emission/waste reductions, etc.). Internal reporting was to the Executive Committee and the Board, while external reporting mainly consisted of providing inputs for the **Annual Joint Report on MDB Climate Finance** and EBRD's **Sustainability Report** and **Annual Report**, all of which were available to the general public.

The structure of the E2C2 team had evolved since the introduction of the SEI, **particularly with the creation of the MRV Manager position** to assume responsibility for developing the recording and tracking of SRI achievements, performing data evaluation, and drawing lessons learned. Country and Sector teams worked in cooperation with the E2C2 team members to communicate their project pipeline and opportunities, which were then screened by the E2C2 team for SRI potential. The Country and Sector teams lead the projects through their different stages (i.e. appraisal, monitoring and completion) while the E2C2 team provides specialist support as and when needed.

EBRD had adopted an **internally developed methodology (the SRI Accounting Standard)** for determining the projects that were eligible for inclusion as SRI investments. This methodology was fully aligned with the corresponding methodology used by the 7 main Multilateral Development Banks (including the EBRD) since 2012 to report jointly on their climate finance activities.

The SRI Accounting Standard provided that a project or project component qualifies as climate finance under the SRI if:

- the main business driver of the project was energy efficiency, greenhouse gas reduction, renewable energy production, climate adaptation, water efficiency or waste minimisation; or
- it was possible to identify (significant) SRI components in the project investment plan; or
- the project was expected to deliver quantifiable SRI-relevant results, e.g. energy efficiency improvements, improved climate resilience, water savings or waste minimisation.

Unless clearly earmarked or specified in the legal agreement, the level of EBRD finance allocated to the SRI was calculated by applying the percentage of the total project cost financed by the EBRD to the portion of the project cost that was specifically attributable to the SRI component. **The SRI data attributable to a qualifying climate finance project was based on an estimate by the project consultant or project engineer (in either the Country/Sector team or the E2C2 team) of how the whole project would perform after it has been implemented. The attributable data was determined based on a baseline which reflected the consumption of energy/resources and emissions if the project had not been developed.** The initial SRI data estimates and underlying assumptions (generally determined at the project signing date) were assessed for reasonableness by the MRV Manager within the E2C2 team.

In the case of SEFFs, the reported SRI data consisted of targets for energy and carbon emissions savings determined by the E2C2 team in advance of any sub-projects being signed, generally on the basis of market studies and the E2C2 team's experience with previous SEFFs. These targets are tracked against

the energy and carbon emissions savings estimated by the project consultants for the actual sub-projects financed by the relevant financial institutions, which would often be reviewed by independent verification consultants. All SRI projects were tracked in EBRDs general project database, DTM. **On a yearly basis, the MRV Manager reviewed a sample of signed projects against updated project data (generally provided by the relevant Operations Leaders), mainly for the purpose of lessons learned.**

Donor funding for the SRI was split between TC (Technical Cooperation) and non-TC (e.g. incentive grants which encourage banks/clients to achieve targets such as CO2 reduction and energy savings; grant co-financing consisting of investment/capex grants and concessional loans). There were 3 major SRI activities for which TC funds were used:

- support of credit lines (i.e. SEFFs) where the Bank provided technical assistance (in many cases incentive payments) to the partner financial institutions and/or the ultimate beneficiaries;
- support of project preparation (e.g. for energy audits, market reviews, industry specialists) - these are either set up as frameworks (supporting various climate finance projects with the same scope) or as individual projects;
- stand-alone policy dialogue.

**The use of TC funds, including the work done on policy dialogue, was tracked by E2C2.** Since mid-2013, the E2C2 team has been centralising information supporting the estimation of SRI data by project engineers/consultants to maintain an audit trail for reported data and serve as a basis for verification by the MRV Manager. IAD noted there had been an inadequate audit trail to support the manner in which the SRI data was estimated that prevented effective verification. It was recommended that the MRV manager introduce a standard template for project engineers to document their estimates that would serve to ensure a proper audit trail.

IAD noted there was a need to improve the quality of data on water and materials efficiency results. Management indicated it would prepare a proposal for the MDB Climate Finance Working Group on how to quantify climate finance for resource efficiency projects by December 2015.

IAD found that a number of projects on the DTM were recorded as completed, even though the SRI benefits had not been achieved (e.g. due to prepayments), and this was leading to inflated SRI achievements. IAD recommended that E2C2 team should track all cancelled and completed climate finance projects to take account of projects that did not achieve any of the expected SRI results. Where cancellations, etc. relate to periods that had already been reported on, the adjustment could be made in the current year's reporting.

The reported emissions data relevant to climate finance projects was reviewed ex-post by the MRV Manager through an annual desk study of a sample of projects, taking into account more recent information (if available) provided by Operations Leaders, E2C2 project engineers, and other specialists across the Bank. These exercises were important in ensuring the reasonableness of the original climate finance estimates, with the results being used mainly for lessons learned purposes. Ex post reviews had been conducted in 2013 and 2014 that had led to significant downward adjustments of ex ante estimates. IAD noted there was no internal guidance on the size and distribution of the sample required to be selected for the annual ex-post review by the MRV Manager.

**Clients were not always required to provide the Bank with regular information on emissions, energy consumption, etc., e.g. through legal covenants as and when appropriate.** Although the E2C2 team liaised with ESD on an ad hoc basis, there appeared to be opportunities for increased synergy between these two functions (ESD's role also includes the identification of enhancements such as EE and

waste reduction that could potentially be built into projects). For example ESD, in liaison with E2C2, could consider the need for specific SRI reporting requirements in the course of the project appraisal/structuring process, and/or include SRI objectives as part of the normal environmental monitoring process.

Management responded to the Internal Audit Report by stating that the SRI data reported by the team is clearly addressed as ex-ante estimates. When annual ex-ante SRI data is reported it represents the projects' status signed in that period. On a periodic basis, the team reviews the progress of large impact projects signed in previous years. The corresponding ex-post SRI data is filed in an off-line system and reported separately from ex-ante data. SRI impacts (i.e. CO2 reductions) can show a decrease (e.g. in case of cancellations) or an up-lift (e.g. when the project is expected to perform better than initially assumed).

The current MRV system is set up to track SRI data up to the moment of signing. Data is filed in the Bank's DTM system and can be retrieved using the Bank's Business Performance Navigator (BPN) reporting system. Although some general data is entered in DTM after project signing (e.g. if a project is cancelled or completed), the current DTM and BPN systems are not designed or used to track specific ex-post SRI data. Management indicated that additional modules under BPN will be developed to report on a timeline. This will allow for ex-post adjustment, tracking and reporting of ex-post SRI data. Appropriate reporting templates showing cancellations and completions will then be introduced based on this new capability by June 2016.

Management noted it would develop internal guidance on the size and distribution of the sample used for the annual ex-post exercise; and liaise with ESD with a view to formulating legal covenants requiring clients to provide the information necessary for ex-post review purposes, and highlighting the need for such covenants at the project appraisal/structuring stage; and seeking increased synergies in ESD's environmental monitoring process where feasible. E2C2 would explore with ESD how the existing environmental and social monitoring could be used for the ex-post review of SRI impact data. ESD believed that existing legal covenants were sufficient and additional data could be collected with revised monitoring templates. Consequently, no additional legal covenants were required. The focus would be on projects with significant SRI impacts. For CO2 savings, this significance level could be set at 25,000 tonnes CO2e per year, which would align with the threshold in the Bank's ESP. Management would develop internal guidance for ex-post data evaluation by 30 June 2016 to include the following topics:

- requirements for annual SRI data update, including sample size;
- ex-post reporting;
- relationship with ESD's environmental monitoring process;
- develop appropriate ex-post monitoring processes for high-impact projects.

### 3. External Evaluations of Climate Finance

Overseas Development Institute (ODI) prepared an evaluation of climate finance funds in 2014.<sup>xxviii</sup>

The study reviewed the performance of GEF, CIFs and the Adaptation Fund. The study's findings were largely positive, concluding that climate funds were targeting the right countries and helping them to confront the implications of climate change. Mitigation finance was concentrated in middle income

countries that were growing rapidly with relatively high and rising GHG emissions. Adaption finance was targeting some of the poorest countries that had the greatest levels of vulnerability to climate change.

The ODI study noted there was considerable opportunity for improvement of the climate funds in areas such as being less risk averse, and being more flexible. Transparency of reports on results needed to be improved to provide stakeholders with a better understanding of what they are achieving. Transaction costs could be lowered and decision making processes made more efficient. There was a need for greater levels of capacity development within countries, and **approaches to engaging with the private sector had met with limited success. There was a need for the funds to develop innovative relations with financial institutions active in climate relevant sectors, in particular infrastructure.**

**OECD prepared an evaluation in 2016 of environmental lending in EU Eastern Partnership Countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine).**

The OECD study noted that MDBs are the main source of funding for green investments through credit lines, particularly for energy and resource efficiency. OECD was trying to identify ways of increasing the engagement of commercial banks in providing loans for green investment. Generally, commercial banks have only established specific environmental credit lines when supported by MDBs and only a small number continue to offer such products once MDB support is withdrawn. The report focused on debt markets, and did not cover other forms of financing for green investments (e.g. project finance, private equity or venture capital). The purpose of these credit lines was to demonstrate the commercial viability of green financing as an attractive business model, providing the basis for a self-sustaining market for financing sustainable energy projects in these countries.

The OECD study found at least 8 MDBs had extended environmental credit lines in the region, as well as Russia and Central Asia. Russia and Ukraine had been the primary beneficiaries and EBRD had been the largest lender through its Sustainable Energy Financing Facility (SEFF). In total, about 70 banks had received support totalling €1.3bn, and several had received support from multiple MDBs. Loans were designed to improve EE and small scale RE of small and medium sized enterprises (SMEs). EBRD's facilities were linked to incentive payments that ranged from 5-30% of the loan amount to end users. Technical assistance was provided to banks to support project origination, development and monitoring. MDBs **broadly use ex-ante indicators** to quantify expected energy savings, RE capacity installed and associated GHG mitigation benefits during project design and approval phase. These indicators were then tracked against actual **implementation of the facility**. MDBs did not normally make this data publically available, other than in a consolidated form as part of regional or facility level reporting.

The OECD study concluded the provision of the credit lines was not sufficient to change the market dynamics in isolation and it was necessary to put in place a supportive policy and regulatory environment. **Concessionality should be kept to a minimum where there is already a positive business case.** MDBs should help financial institutions to develop sustainable long-term lending models. Going forward, **MDBs can broaden their role towards de-risking the flow of third party public and private finance, rather than meeting their own lending targets.** Additional country-level analysis is needed to produce country-specific recommendations to help develop a shared understanding among major stakeholders of the key measures that need to be taken to improve private sector access to long-term funding for low-carbon investments.

**OECD prepared an evaluation in 2018 of Access to Private Finance for Green Investments in Ukraine**

The evaluation was designed to identify opportunities for improvement to scale up green financing in Ukraine by reviewing the experience of State Export-Import Bank of Ukraine (Ukreximbank). Ukraine has

---

been suffering from extreme economic and political uncertainty since 2008 that had resulted in a rapid depreciation of the hryvna, a contraction in economic activity and the availability of credit. Ukraine remains one of the most energy intensive countries in the world, and is highly dependent on energy imports. The government wanted to reduce energy dependence and improve energy efficiency to reduce costs and improve competitiveness. Energy pricing is being reformed, and a new Energy Strategy to 2035 was adopted in 2017. The government had been making progress developing RE by adopting a FIT, and was investigating the use of auctions. MDBs and climate financing facilities had mobilised more than €600mn to support sustainable and efficient energy use. Ukraine attracted about 40% of all new investment across the EU Eastern Partnership from 2004-2014, equivalent to USD3.3bn.

Ukreximbank was by far the most successful bank drawing upon credit lines from 5 different MDBs, including EBRD, EIB, Global Climate Partnership Fund, World Bank, and Nordic Investment Bank. Ukreximbank disbursed over €500mn in loans for EE and RE. These facilities helped raise client awareness of new technologies and associated benefits, improved capacity to identify and appraise projects, reduced transaction costs of project preparation and monitoring, and improving the regulatory environment. Within Ukreximbank a special purpose team was established, investment in training across the branch network. Ukreximbank benefited initially from MDB technical support, it developed its own capacity inhouse to provide green finance. The OECD study concluded that the government should continue to prepare primary and secondary legislation and regulations, support the development of ESCOs, reform tariffs, and promote sustainability reporting and disclose among private sector companies.

**The World Resources Institute (WRI) prepared an evaluation of the energy infrastructure portfolios of AsDB and WBG in 2017.**<sup>xxix</sup>

The paper noted the global level of infrastructure investment needed to double to USD6tn pa, with about 70% of this investment occurring in developing economies, of which 30% would be allocated to the energy sector. The study reviewed whether the MDB's energy portfolios were: **aligned** with a 2°C pathway (eg RE and battery storage); **possibly aligned** (eg natural gas fired generation, transmission and distribution); **controversial** as alignment varied under different scenarios (eg large hydro power and oil and gas projects); and **misaligned** (eg coal power plants with unabated emissions).

The WRI study found that most projects were conditional (ie possibly aligned) and could have a positive or negative impact on GHGs, depending upon how the facilities were used in the future. The study concluded there were opportunities to: move into new areas that were unambiguously aligned such as battery storage; strengthen coordination between the public and private sector arms to mobilise private finance; anticipate the transition out of gas to zero carbon alternatives; increase EE gains; and develop plans to incorporate CCS in projects.

---

## Annex 4: EBRD's Sustainability Program

### 1. Overview

This appendix provides an overview of the various documents defining EBRD's sustainability initiatives from a policy perspective.

### 2. Environmental and Social Policy

Under EBRD's Founding Agreement it committed "to promote in the full range of its activities, environmentally sound and sustainable development". EBRD adopted its first Environmental Policy in 1991, and over time it was broadened to include social policies. In 2008 the Environmental and Social Policy (ESP) was extended to include 10 Performance Requirements (PRs) clients needed to reflect in their operations. The current ESP was approved by the Board of Directors in May 2014 and it is generally aligned with the IFC Performance Standards/ Equator Principles and EU environmental standards.

All projects financed by the EBRD must meet a comprehensive set of specific PRs that relate to: (i) Assessment and Management of Environmental and Social (E&S) impacts and issues; (ii) Labour and Working Conditions; (iii) Resource Efficiency, Pollution Prevention and Control; (iv) Health and Safety; (v) Land Acquisition, Involuntary Resettlement and Economic Displacement; (vi) **Biodiversity Conservation and Sustainable Management of Living Natural Resources**; (vii) Indigenous Peoples; (viii) Cultural Heritage; (ix) Financial Intermediaries (FI); and (x) Information Disclosure and Stakeholder Engagement.

Under the ESP, projects must be designed, implemented and operated in compliance with applicable regulatory requirements and good international practice, based on the application of a mitigation hierarchy. The mitigation hierarchy comprises measures taken to avoid creating environmental or social impacts from the outset of development activities, and where this is not possible, to implement additional measures that would minimise, mitigate and, as a last resort, offset and/or compensate any potential residual adverse impacts.

EBRD is committed to promoting the adoption of EU environmental principles, practices and standards in EBRD-financed projects, where these can be applied at the project level, regardless of their geographical location. **When host country regulations differ from EU environmental standards, projects will be expected to meet whichever standard is more stringent.** EBRD will not finance projects that would contravene country obligations under international treaties and agreements, as identified during project appraisal. EBRD clients and their business activities are required to respect human rights and gender equality. EBRD will assess to what extent tariff changes caused by projects may create problems of affordability of basic levels of services for disadvantaged and/or vulnerable groups of the population, and ensure that effective schemes to address this risk are developed and put in place.

The EBRD is committed to the principles of transparency, accountability and stakeholder engagement and engages in meaningful dialogue with its stakeholders, in accordance with the EBRD Public Information Policy (PIP). EBRD's country and sector strategies and policies contain information on the potential environmental and social challenges and opportunities associated with the EBRD's envisaged activities. Through its technical cooperation and policy dialogue, the EBRD seeks opportunities to build capacity to manage environmental and social issues in its COOs.

EBRD categorises each project to determine the nature and level of environmental and social investigations, information disclosure and stakeholder engagement required. The level of analysis is

commensurate with the nature, location, sensitivity and scale of the project, and the significance of its potential adverse future environmental and social impacts. All projects are subject to an environmental and social appraisal, based on information provided by the client. A directly financed project is categorised "A" when it could result in potentially significant adverse future environmental and/or social impacts. A directly financed project is categorised "B" when its potential adverse future environmental and/or social impacts are typically site-specific, and/or readily identified and addressed through mitigation measures. A directly financed project is categorised "C" when it is likely to have minimal or no potential adverse future environmental and/or social impacts, and can readily be addressed through limited environmental and social appraisal. A project is categorised as "FI" if EBRD disburses funds through FIs, which undertake the task of sub-project appraisal and monitoring.

EBRD will not finance projects that are included in EBRD's E&S Exclusion List, included as Appendix 1 to the ESP such defence-related activities, tobacco, selected alcohol products, substances banned by international law or gambling facilities. A list of projects that are likely to be categorised as A is identified in Appendix 2 of the ESP. Appendix 3 defines the PR for Resource Efficiency and Pollution Control, which is designed to identify project-related opportunities for energy, water and resource efficiency improvements and waste minimisation and promote reductions in GHG emissions. For projects that currently produce, or are expected to produce post-investment, **more than 25,000 tonnes of CO<sub>2</sub>-equivalent annually, the client will quantify and report on these emissions in accordance with EBRD's Methodology for Assessment of Greenhouse Gas Emissions.** Clients must seek to minimise the project's water use and avoid or minimise the generation of hazardous and non-hazardous waste

EBRD prepares Initial Environmental and Social Examinations (IESEs) where insufficient information is provided by the client at the time of categorisation to determine the appropriate category and scope of appraisal. Clients of Category A projects are required to carry out a comprehensive Environmental and Social Impact Assessment (ESIA), which is subject to 60/120 day disclosure period under the PIP. ESP project requirements are specified in legal documentation and clients are required to prepare an Environmental and Social Management Plan (ESMP) and establish and maintain an Environmental and Social Management System (ESMS). Where the project relates to existing facilities, or where the project does not meet the PRs from the outset, the client will be required to develop and implement an Environmental and Social Action Plan (ESAP).

Clients are responsible for implementation and their capacity to perform this task is a critical issue, particularly for FIs. To help resolve this issue, EBRD conducts due diligence on the FI and its portfolio to assess: (i) the FI's existing E&S policies and procedures and its capacity to implement them, (ii) E&S issues associated with the FI's existing and likely future portfolio, and (iii) measures necessary to strengthen the FI's existing E&S safeguard system.

The client will provide regular reports to the EBRD on the environmental and social performance of the project, including compliance with the PRs and implementation of the ESMP, ESMS, ESAP and Stakeholder Engagement Plan where appropriate. EBRD will periodically verify the monitoring information prepared by clients through site visits to projects. **At a minimum, monitoring requirements and commitments will include reviews of Annual Environmental and Social Reports on projects prepared by clients.** If the client fails to comply with its E&S commitments as set out in the legal agreements, the EBRD may agree with the client remedial measures to be taken to achieve compliance. If the client fails to comply with the agreed remedial measures, EBRD may take such action and/or exercise remedies contained in the financing agreements.

When there are material changes envisaged in a project, EBRD will carry out an E&S appraisal of the relevant changes in accordance with the ESP and any additional appraisal and stakeholder engagement

requirements. E&S mitigation measures will be incorporated into the modified/restructured project documentation. If changes are material they will need to be approved by the Board of Directors.

E&S issues relating to EBRD-financed projects are summarised in EBRD Project Summary Documents and performance can be reviewed by the Evaluation Department (EVD). EBRD has established the Project Complaint Mechanism (PCM) to assess and review complaints about Bank-financed projects. EBRD publishes an annual Sustainability Report on the E&S sustainability issues relating to its activities and on the implementation of the ESP.

The ESP contains a commitment that it will be subject to review by the Board of Directors every 5 years. A review is currently being implemented that is coordinated among the 3 major EBRD Governance Policies (ESP, PIP & PCM) and Board approval of the new policies will be sought in May 2019. **The main change envisaged in the ESP is the preparation of a new overarching Sustainability Vision Statement for EBRD.** There is an intention to investigate the potential to strengthen client ESP implementation capacity, particularly for FIs and new capital market instruments, and observe PRs using a risk based approach to improve efficiency in implementation

### 3. Sector Strategies

#### 3.1. Energy

The first phase of the Sustainable Energy Initiative (2006-2008) (SEI1) was developed within the context of the **EBRD's Energy Operations Policy (EOP) (2006-2013)**. The EOP placed a strong emphasis on energy security, noting that only 4 out of the 27 COOs were rich in oil and gas, and the other countries were dependent on imports, coal, hydro and nuclear energy. As a result there was a need to increase energy security by diversifying sources of energy, reducing inefficient use of energy, developing renewable energy (RE), and cooperating with neighbours on cross border energy issues. These actions would derive important co-benefits by reducing greenhouse gas (GHG) emissions and other forms of pollution. As a result, EBRD made energy efficiency (EE) the cornerstone of its 2006 EOP.

To underline the importance of EE, the EOP noted that SEI1 was being launched, with an objective of investing up to €1.0bn in GHG reduction projects to reduce emissions on both the supply and demand side. This target would be complemented when data acquisition was reliable by a target based on physical energy saved and/or emissions reduced. It was noted that the SEI did not have a formal target, and it assumed the availability of grant funds for co-investment in projects. SEI would promote EE and RE technologies and carbon trading in accordance with its Environmental Policy.

**Energy sector investments had consistently been the largest single contributor to the SEI climate change objective**, delivering estimated emissions reductions of 37mn tonnes of CO<sub>2</sub> per year and energy savings of 16.5mn toe per year. Investments in the energy sector contributed nearly 50% – a total of €5.3bn – to cumulative SEI financing of more than €12.1bn at the end of August 2013. EBRD had financed over 60 renewable projects in the policy period, comprising: 47 wind, solar, biomass and small hydropower projects; 2 contributions to RE funds; and 12 hydropower rehabilitation or construction projects.

Large wind generation projects were typically financed using **direct financing**, whereas smaller projects were developed with instruments such as the **Sustainable Energy Direct Financing Facilities for the West Balkans and Ukraine**. EBRD had provided over €760mn of financing for RE projects through loans intermediated by local banks under its **Sustainable Energy Financing Facility (SEFF) programs**. During

the EOP, there was a shift towards an increasing number of smaller projects, particularly in South Eastern Europe (SEE).

SEI financing facilities were usually supported by donor-funded technical cooperation (TC) grant funds for: (i) project preparation and implementation, and (ii) reform and restructuring of the energy sector. Sector reforms were implemented through activities such as preparing energy sector roadmaps and RE regulations, improving tariff methodologies and supporting commercialisation of public sector entities. EU energy requirements policies were an important driver of this program, in particular the community-wide target to secure 20% of final energy consumption from renewable sources by 2020. A further driver was the rapid fall in the cost of wind and solar technology during the EOP, although there continued to be constraints associated with RE such as costs that exceeded fossil fuels, intermittent supply, and marginal costs of RE supply that were near zero that disrupted energy markets based on marginal costs.

The legal and regulatory frameworks necessary to follow EU requirements were in place in all the advanced COOs, although some regulatory uncertainties had arisen in the RE market associated with green certificates. Similarly most advanced countries had introduced cost reflective tariffs and unbundled the power markets, although there had been little privatization in generation and transmission, or the oil and gas sectors. Progress in the former CIS had been slower than advanced COOs due to the absence of an equivalent reform anchor.

During the EOP period EBRD had primarily engaged in policy dialogue on RE legislation with governments and regulators in the Balkan countries, Ukraine and Kazakhstan. **In 2012 and 2013 EBRD financed its first windfarm and solar projects in Ukraine and prepared a strategic environmental assessment of RE in Kazakhstan.** EU accession and the need to comply with the provisions of the Treaty Establishing the Energy Community for South East Europe (the ECSEE) had influenced the reform path in SEE. **Ukraine was expected to join European Network of Transmission System Operators (ENTSO) and the Energy Community, which would bring its energy sector into line with the regionalisation of energy markets in Europe and Southeast Europe.** Carbon markets had not emerged as expected and only 2 COOs, Ukraine and Kazakhstan, had adopted binding emissions targets.

**In 2014 EBRD replaced the EOP with an Energy Sector Strategy (ESS) for the period 2014-2018.** The ESS restated the focus on EE and it was built around the Sustainable Energy Initiative (the SEI), which focused on 2 objectives: (i) reducing energy consumption through investments in projects such as industrial efficiency or development of building codes; and (ii) supporting efficient and sustainable RE production, for example financing windfarms or smart grids. The strategy aimed to promote initiatives in a number of key areas such as: transparency, gas flaring reduction, regulatory best practice, frameworks for carbon capture and storage (CSS) and demand side management, policy dialogue on reducing energy subsidies and cost-reflective pricing.

The ESS expected RE and natural gas to become increasingly important sources of energy over time to meet GHG and energy security needs. It was noted the offshore Kashagan field in Kazakhstan and the Shah Deniz II field in Azerbaijan were expected to come on stream in 2013 and 2017 respectively. New finds in the eastern Mediterranean and offshore Mozambique and Tanzania were expected to significantly increase the supply of natural gas in the COOs. These increases in gas supply were expected to require large investments in supporting transmission infrastructure.

The ESS introduced the SEMED region, where EBRD had only recently established operations, and it was expected to face similar challenges to SEE and CIS countries. It was noted that under United Nations (UN) definitions all 4 SEMED countries were experiencing either water scarcity (Egypt and Morocco) or absolute scarcity (Tunisia and especially Jordan). On average 19% of water withdrawal (as opposed to

consumption) was attributable to industry, of which the energy sector operations in areas such as oil and gas extraction, refining or cooling power plants played an important role. The water sector was also a major user of energy: irrigation, water transportation and distribution and desalination all require significant volumes of electricity. As a result, resource efficiency was particularly important in the SEMED region.

The ESS coincided with the launch of the Sustainable Resource Initiative (the SRI). The SRI was an umbrella initiative which built on the SEI and expanded EBRD's focus beyond energy to address efficiency in the use of water and other materials. For the energy sector these issues were key as it is one of the major users of water and other materials, and because of the opportunities it provided to work through the energy sector to promote more resource efficient behaviour. The ESS was based on 2 considerations:

- Efficiency on the demand side to reduce energy intensity by curbing demand, and improving supply side efficiency when increasing capacity to meet new demand; and
- Uncertainty – and the need to avoid stranded assets by pursuing “no regrets” energy investments.

Reductions in energy intensity was the first priority as the cost saving of one unit of energy is in most cases significantly less than the cost of producing an additional unit of energy. RE would continue to be a priority and it was noted these projects were often smaller and more numerous than conventional projects. EBRD would use more flexible intermediated structures such as **the Local Enterprise Facility** and **sustainable energy credit lines** to support this market.

The ESS indicated EBRD would continue to support the development of carbon markets such as emissions trading schemes in Turkey, Kazakhstan and Ukraine and it would look to expand this work in other countries. EBRD would continue to introduce adaptation and resilience into its work throughout the energy sector, particularly in relation to water in hydro and oil and gas projects. The ESS noted EBRD's intention to support CCS projects where ever possible, although this technology was not yet commercially viable. EBRD would continue to support significant improvements in energy, water and materials efficiency through rehabilitation or new build capacity in the generation of electricity and the refining sector. It would support investments in gas and electricity transmission and distribution networks which reduced commercial or technical losses.

The ESS noted **EBRD would incorporate into its analysis an assessment of the impact of carbon and other emissions, using shadow prices** to demonstrate investments are economically viable when emission externalities are taken into account. The methodology for this assessment would be developed drawing upon practice in this area amongst other MDBs and published in the first half of 2014. This operational approach, including the screening criteria, would apply to any project presented for Board approval after the adoption of the ESS.

EBRD would establish an integrated approach to implement the ESS drawing together additional resources, technical assistance and policy dialogue coordinated with a series of targeted investments to address specific transition gaps. EBRD would continue to leverage financing from Climate Investment Funds, the EU Neighbourhood facilities and other sources. The energy sector was expected to significantly contribute to the Bank wide target for the period 2012 – 2014 to achieve € 4.5-6.5bn of investment in EE and RE and expected emission savings of 26 - 30 MtCO<sub>2</sub>. **The following indicators would be tracked for each COO from mid-2014 to measure progress on the implementation of the strategy:** (i) Private participation; (ii) Cost reflective pricing; (iii) Energy efficiency; (iv) Carbon intensity; and (v) Interconnections/energy trade.

### 3.2. Transport

EBRD distinguishes between urban and non-urban transport projects, due to the different nature of the borrowers. Urban transport projects, where the counterparty is a local authority or their utility enterprise, are classified as Municipal and Environmental Infrastructure (MEI) and they are guided by the MEI Sector Strategy.

Transport Operations Policy (TOP) guided non-urban transport operations over the period 2005 – 2008 and it was silent about sustainability. Nevertheless, from 2007 to 2012, EBRD provided almost €870mn for **EE investments** in the transport sector under the SEI programme. These investments included more fuel efficient rolling stock, ships and other vehicles, traffic management systems, and EE standards for transport infrastructure such as airports and port terminals. Together, these projects were estimated to have reduced CO2 emissions by 600,000 tonnes per year.

Sustainability became a priority in the **Transport Sector Strategy (TSS) 2013-2018**. Sustainable transport was defined as the application of EE technologies and standards and the use of lower-emission modes to reduce energy consumption in the sector. Investment in the transport sector had grown rapidly following the Global Financial Crisis, and over time EBRD had been steadily increasing the proportion of private sector operations and loans to state owned entities ("SOE") structured on a commercial basis.

The TSS noted the International Energy Agency (IEA) reported that transport accounted for about 23% of global CO2 emissions. The level of emissions in COOs was lower at approximately 14%, reflecting the relatively low level of car ownership. Nevertheless, transport's share of emissions was growing in line with socio-economic development and represented a key challenge for the region. The TSS indicated that EBRD would promote an "Avoid-Shift-Improve" strategy for transport development through its investments and policy dialogue in compliance with its ESP. EBRD would avoid or minimise adverse impacts through appropriate mitigation and, where appropriate, introduce off-set measures, which ensured its transport projects were developed in an environmentally sound manner.

It was noted that EBRD's public sector transport operations were heavy users of TC funding for project preparation, with an estimated annual requirement of € 6-10mn that would be primarily allocated in the Western Balkans, Early Transition Countries (ETCs) and the SEMED region. Sustainable transport would be a priority and cost sharing would be sought from private sector clients unless EE formed part of the project. EE assistance consisted of energy audits to identify energy consumption patterns, and identification and preparation of EE investments. The transport sector was not a heavy user of investment grants, but there were circumstances where affordability considerations might require grants in regions such as the ETCs, and the blending of grants with EBRD loans was needed to meet IMF concessionality requirements. The TSS indicated EBRD intended to double the contribution of transport to SEI targets from 13% to 25% of Annual Business Investment.

### 3.3. Municipal and Environmental Infrastructure

During the period 2005-2011 the MEI portfolio was allocated 45% to water and waste water, 35% urban transport, and 18% district heating. MEI had pursued a policy of moving further east and south and engaging with smaller municipalities. As a result, MEI relied on large amounts of TC, which increased from €10.7mn in 2005 to €25.6mn in 2011. An EBRD-supported MEI public sector project typically required about €400,000 in pre-signing TC support and up to € 900,000 post-signing, almost irrespective of the size of the underlying investment.

TC activities ranged from financial and environmental audits, feasibility studies, financial and operational performance improvement programmes, through to support for project implementation units. EBRD had increasingly been co-financing projects alongside investment grant donors in low income locations to address basic infrastructure needs. Under these arrangements EBRD would structure the projects, while donors would help address affordability and other issues such as compliance with EU standards. An important source of funding in Ukraine was the Eastern Europe Energy Efficiency and Environment Partnership (E5P) established in 2009 to support of EBRD's energy efficient investments. Other sources of TC included Neighbourhood Investment Facility, and the Investment Facility for Central Asia and the Western Balkans Investment Framework.

The current MEI Strategy (MEIS) was approved in 2012 and it noted the total population in most advanced COOs was stagnant or declining, but growing in the SEMED region. The level of urbanization varied from 26% in Tajikistan through to 73% in Russia, and averaged 63% over all COOs. If episodes of climate-related disruption take place, it was probable the rate of rural-to-urban migration would rise.

Under the MEIS district heating was an important area of sustainable operations due to high levels of energy intensity, particularly in Central Europe and the Baltic States (CEB). The built environment was estimated to account for around 39% of final energy consumption throughout the region, mostly through heat, particularly in public buildings. The EU Covenant of Mayors initiative was an important driver of EE reforms. A total of 191 municipalities from 21 EBRD countries of operations had signed the Covenant, committing to increase EE and use of RE to meet the EU 20% CO<sub>2</sub> reduction objective by 2020. EE measures included improvements in the insulation of the existing housing stock, more widespread use of thermostats, and stricter EE standards for new construction. EBRD was supporting municipalities and regions to develop legislation and sign long-term Energy Performance Contracts (EnPC) with private companies known as Energy Servicing Companies (ESCO).

Water was receiving increasing attention from EBRD due to risks of water shortages arising from climate change. Central Asia (CAS), the Caucasus and SEMED were particularly vulnerable to water shortages. In 2010, an estimated 19mn people in COOs did not have access to improved water supply. The MEIS noted that water may become scarce due to changes in climate and precipitation patterns, resulting in increased frequency of flooding and droughts.

Urban transport was flagged as an important area of climate change activity, particularly in CAS and possibly in SEMED. Levels of private car ownership were low and there was an intention to increase EBRD investment in public transport. Projects that reduced the carbon intensity of the sector such as electric transport (tram, trolley, light rail and metro) would be primary targets for sustainability projects. Other priority sustainability initiatives included public lighting, which typically accounts for 25% of a city's electricity bill, could be reduced by up to 70% with new light emitting diode (LED) technology. Similarly, traffic management systems that smooth traffic flow can reduce vehicle emission per car by approximately 50% versus cars in stop-and-go conditions.

### **3.4. Finance**

Financial sector strategies were approved in 1992, 1996, 1999 and 2010. Sustainability was not recognised as a priority until 2010. The 2010 strategy noted that EBRD has been active in promoting sustainable energy investment through the financial sector since 2004, and it would continue to be a priority in the current strategy period through instruments such as Energy Efficiency Credit Lines.

## 4. Thematic Initiatives

### 4.1.1. Energy Audit Frameworks

Energy Audits are used as a market entry instruments and they have been prepared in all COOs for projects directly financed by EBRD (no financial intermediaries). These audits were funded by various donors.

### 4.1.2. SEFFs/GEFFs

In 2004 EBRD introduced Sustainable Energy Finance Facilities (SEFFs) to develop EE and RE financing markets in its COOs. SEFFs provide credit lines through Participating Financial Intermediaries (PFIs) accompanied by grant-financed technical assistance, to PFIs and sub borrowers, and in many cases incentive payments to the ultimate beneficiaries, mainly small and medium enterprises (SMEs) and households. The SEFFs were designed to encourage COOs to improve efficiency in energy demand and diversify the energy supply mix into RE. SEFFs achieved these objectives by resolving constraints on the uptake of new technology in the following areas: (i) financial, (ii) technical, (iii) awareness, and (iv) legal.

EVD reviewed the SEFF portfolio in 2013 and found it accounted for about 18% of the SEI portfolio. The SEFF portfolio was valued at €2.4bn, and it operated in 20 countries through 90 local PFIs, supporting 62,000 projects. While the largest number of projects (93%) was in the residential sector, the industrial sector has been the main beneficiary in terms of funds (85%), followed by residential (12%), and the municipal sector had been negligible (2%).

By 2018, the SEFF portfolio was valued at €4.0bn and it operated across 24 countries through a network of 130 local PFIs supporting 130,000 small investments. Following the Board approval of the Green Economy Transition (GET) Initiative in 2015, SEFFs were reconfigured as Green Economy Financing Facilities (GEFFs) and a more programmatic approach was used to offer these facilities, and address transition gaps on a wider scale. GEFFs are similar to SEFFs in the sense they create green investment demand by informing SMEs and retail clients of the business case for investing in higher performance technologies.

The business cases overcome clients' information asymmetries and early mover costs that discourage investment in higher performance technologies. Baselines are established in the business cases and there is reporting on performance up to project completion. A management information system (MIS) has been established in E2C2 to facilitate data collection, reporting and payment of incentives to clients. Subsidies are used to demonstrate benefits and they are only used for projects that generate a positive financial return. Subsidies are structured as investment incentives for sub-borrowers and as first loss instruments for PFIs. The PFIs are required to provide in kind contributions for implementation of the frameworks.

In June 2018, the GEFF framework was extended through the establishment of a Regional GEFF financed with USD300mn from EBRD, and USD100mn provided by the Green Climate Fund (GCF). The facility included TC support of USD23m, of which USD11.5m was funded by the GCF and the balance was sourced from the SSF and other donors. Eligible countries under the framework were: Armenia, Egypt, Georgia, Jordan, Moldova, Mongolia, Morocco, Serbia, Tajikistan and Tunisia. The facility will provide financing to 13,000 projects for RE, EE and climate resilience. Funds will be allocated to projects based on a list of pre-approved technologies, or expert analysis for large projects such as building and industrial EE and RE. Policy dialogue may be provided for activities such as supporting implementation of

Nationally Determined Contributions (NDCs), development of sustainable energy regulation, energy efficiency action plans, and technology standards and labelling based on EU standards.

#### 4.1.3. *FINTECC*

In October 2013 the Board approved Finance and Technology Transfer Centre for Climate Change (FINTECC), which was a **regional framework** for providing incentive grants to EBRD clients in ETC (up to USD7.85mn) that was funded by the Global Environment Facility (GEF), and in the SEMED region (up to €5mn) that was funded by the SSF.

The incentive grants are provided to support EBRD financing for investments in eligible climate technologies to reduce GHG emissions or address climate change adaptation. The eligible project components need to demonstrate best available technology with low market penetration in a country or sector. Each incentive grant can represent up to 25% of the total cost of the eligible technology and they cannot exceed USD 0.5mn (€ 0.37mn equivalent) for operations in ETC and € 0.4mn in SEMED. It was expected FINTECC would support climate technology investments of approximately USD70mn (€ 52mn equivalent) in Early Transition Countries (ETC) and approximately € 35mn in the SEMED region.

In addition, FINTECC included TC funds provided by the GEF for the ETCs (up to USD3.05mn, €2.25mn equivalent) and by bilateral donors for the SEMED region (up to € 500,000). The TC would be used to fund activities to increase awareness, address information gaps in the market and stimulate technology transfer through: (i) the development of a set of guidelines for improving climate resilience at enterprise level, (ii) the establishment of regional networks to facilitate climate technology transfer, (iii) market studies and statistical analysis of market penetration of climate technologies in ETC and SEMED; and (iv) a policy dialogue activity to address regulatory gaps and capacity constraints at institutional level that inhibit the wider diffusion of best available climate technologies.

In September 2015, FINTECC was broadened in scope to include Ukraine, and USD7mn was made available from GEF for non-TC grant purposes to support eligible projects. It was expected the programme would support climate technology investments in the range of USD39mn in Ukraine. Each non-TC grant would represent between 5% and 25% of the total costs of the eligible technologies, and be capped at USD1mn. The FINTECC non-TC grant cap is higher in Ukraine than in ETCs and SEMED as EBRD typically finances larger projects in Ukraine – where the scale of technology investments is significantly higher. Projects must comply with criteria defined in the Board document such as: (i) Market Penetration is less than 5% in the relevant sector in the country; and (ii) Replicability of the Technology in the Market.

TC funds (up to €4mn) were provided by the EU's Neighbourhood Investment Facility (NIF). The TC would be allocated as follows:

- €0.7mn for institutional, policy and regulatory support to assist the government of Ukraine to meet EU standards;
- €2.8mn for project development and implementation support to enterprises. This figure included €1.0mn for **Innovation Vouchers** allocated to eligible EBRD clients to help them procure services such as R&D, testing, certification and IP registration; and
- €0.5mn for knowledge management and development of industry networks.

The policy packages would provide support to the State Agency for Energy Efficiency in cooperation with other relevant stakeholders, including Ministry of Economy, Ministry of Regional Development, and

relevant committees of Verkhovna Rada (e.g. Committee on Entrepreneurship and Industrial Policy). The scope of work included the following tasks:

- review of existing legislation, policy and regulatory framework relating to the promotion of energy efficient technologies with the aim of ensuring consistency with the relevant EU Directives;
- development of technical regulations in relevant areas including eco-design, and voluntary and compulsory eco-labelling

FINTECC projects follow EBRD's standard project preparation, approval, and implementation process. A consultant is recruited between Concept Review Memorandum and Final Review Memorandum of individual transactions to ensure that the project achieves incremental ('additional') improvements to the investment plan, and that technologies supported by FINTECC meet the eligibility criteria (e.g. Best Available Technology (BAT) specification compliance, low market penetration, etc). The project then goes through a standard approval process within EBRD, managed by the respective Operation Leader (OL) from the Banking Team with the incentive grant being approved in parallel to the transaction.

Clients are paid following a desk based verification of the **technology installation** by E2C2 or international consultants. **The impact of the climate technologies on the energy performance, water use, together with qualitative improvement of the systems and their operation are reported one year after installation and commissioning of the technology and an ex post performance assessment is undertaken.**

The FINTECC additionality test is based on the following criteria:

- The investments considered for incentive grants under FINTECC would not materialize in the absence of the FINTECC incentive grant, or alternatively the technology would be implemented with a specification not leveraging full energy efficiency / water efficiency potential; and
- The installation of the specific technology or its specification is not driven by a specific regulatory requirement.

The application of FINTECC grants is consistent with EBRD's internal guidelines on the use of incentive grants and the **DFI Guidance for Using Investment Concessional Finance in Private Sector Operations**. This guidance is based on the principles of: **additionality; crowding-in; commercial sustainability; reinforcing markets; and promoting high standards**. FINTECC translated these principles into the following criteria defining eligibility to access FINTECC Funds: (i) technology specification went beyond standard practice; (ii) investments or specification improvements were additional, based on a special **additionality test**; (iii) alignment with Best Available Technology (BAT); and (iv) Climate change mitigation and adaptation impact in the form of energy savings and carbon emission reductions, water saving and/or result in increased resilience to climate change. Eligible costs include design, construction and commissioning of facilities.

#### 4.1.4. *Green Cities*

In November 2016 the Board approved the Green Cities Framework (GrCF). The GrCF consists of loans to governments, municipalities, municipal owned and private companies providing municipal services. The total amount of the framework was up to €250mn and the initial priority was cities of greater than 100,000 people in the Caucasus, Moldova, Belarus, and Western Balkans. **Loans can be co-financed with capital grants and/or concessional loans. It was expected that additional grants / concessional finance of up to € 75mn could be used to support the sub-projects. TC was provided for Green City Action Plans ('GCAP'), feasibility studies, restatement of financial accounts, Gender Advisory**

---

**Programs, project implementation support, corporate development, and Civil Society Capacity Building. When Non-TC capital grants are sourced from EBRD they can be up to 33% of the total project cost.** The duration of GrCF was anticipated to be 5 years from the date of Board approval.

TC is provided by multilateral and bilateral donors and the SSF for the Framework's activities including GCAPs. The Board delegated approval to management for sub-projects up to €25mn. Non-TC grants managed by EBRD and/or concessional loans will not count towards the applicable delegated approval limit. For each sub-project under the GrCF, a financial analysis, financial projections and sensitivity analyses are conducted. An analysis of the sovereign or municipal debt capacity is undertaken as required. Each sub-project needs to undergo Environmental and Social Due Diligence ('ESDD') and be categorised under EBRD's ESP. Category A projects under EBRD's Environmental and Social Policy are submitted to the Board for approval regardless of the size of the Bank financing.

The over-arching aim of the GrCF is to act as a catalyst to address environmental challenges at the City level. This is achieved through the preparation and subsequent implementation of GCAPs, which are based on a methodology developed by the OECD and ICLEI. The GCAPs are used to establish baselines, identify priority green investments, develop implementation plans and establish monitoring and evaluation frameworks. Beyond GCAPs, the GrCF sub-projects address company financial and operational performance, and implementation capacity, where required.

Where appropriate, Public Service Contracts between the respective utility company and municipality are established, which allow service support payments and identify Key Performance Indicators. Tariff reform is discussed with each company to target improvements in financial sustainability from fare revenues. For urban transport projects Sustainable Urban Mobility Plans can be developed in conjunction with GCAPs to support planning capacity, more sustainable transport integration, and promotion of the private sector where feasible. Under the GrCF, participating companies implement restructuring measures supported by TC financed Corporate Development Programmes or Financial and Operational Performance Improvement Programmes. Where feasible sub-projects under the proposed GrCF pursue private sector participation through outsourcing, incentive based management contracts or EnPCs and ESCO based solutions. The Framework has supported the adoption of 3 GCAPs, signed 16 Green City investments, and it has launched an additional 12 GCAPs.

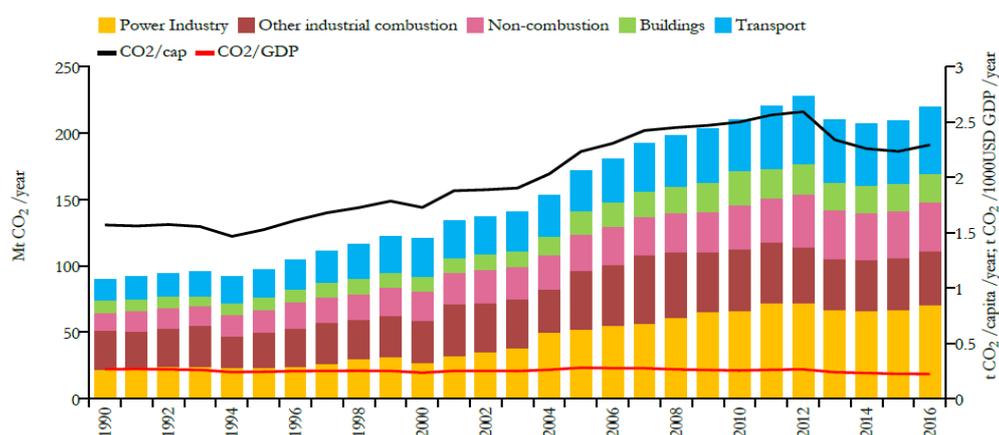
Due to the high level of demand GrCF, the Board approved GrCF2 in 2018, which consists of a framework of up to € 700mn, with concessional co-financing from GCF of €210mn and GCF TC of €18mn. Under GrCF2 loans of up to €25mn will be delegated to management for approval.

## Annex 5: Case Study – Egypt

### 1. GHG Emissions

Green House Gas emissions (GHG) levels in Egypt grew throughout most of the 2000s, and only started to stabilise in about 2012, as shown in Figure A5.1:

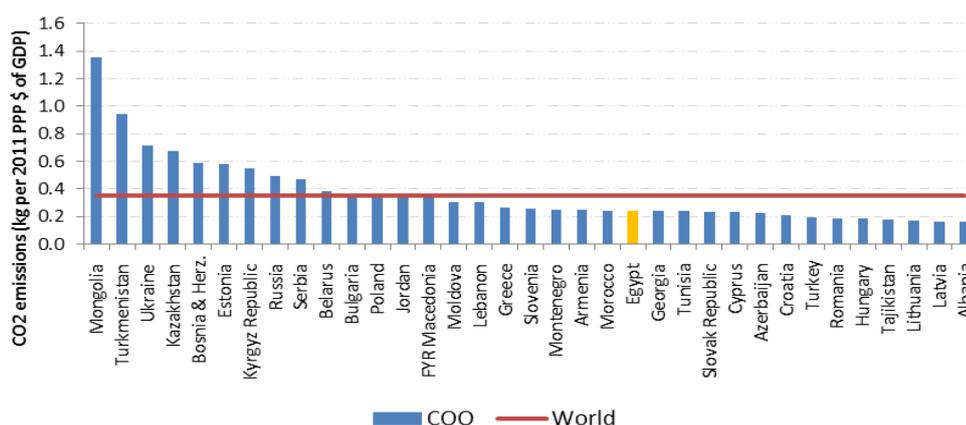
Figure A5.1: Fossil CO2 emissions by sector, 1990-2016



Source: EDGARv4.3.2 dataset

About 70% of GHG emissions in Egypt are energy related, of which 6% were due to fugitive emissions. Egypt is ranked 11th in the world for rates of gas flaring. Egypt ranked 22 in EBRD’s countries of operation (COOs) in terms of carbon intensity relative to GDP in 2013, as shown in Figure A5.2.

Figure A5.2: Carbon Intensity per unit GDP, 2013



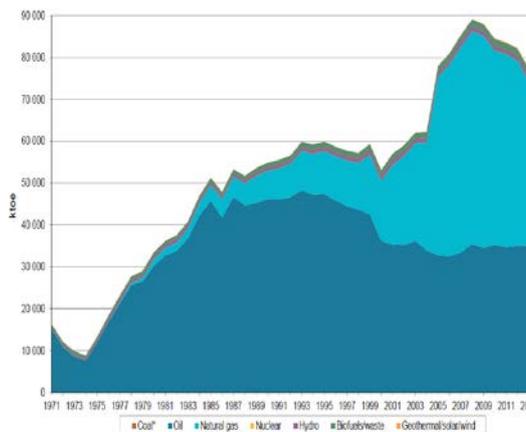
Source: WDI, CO2 emissions (kg per 2011 PPP \$ of GDP)

### 2. Energy

International Energy Agency (IEA) data shows that after a period of rapid growth from 1974 to 2009 energy production in Egypt started to decline. Gas was the dominant source of growth, but production has fallen substantially in recent years, as shown in Figure A5.3. Total Primary Energy is sourced from oil

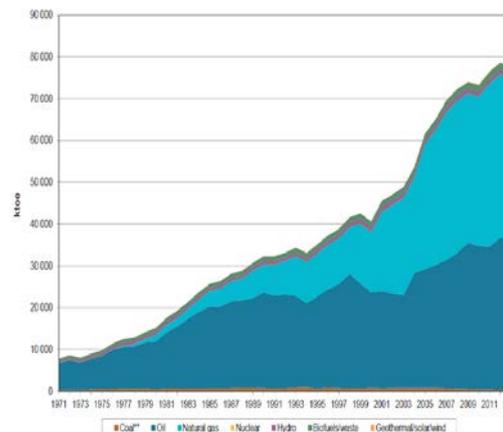
(50%), followed by natural gas (46%), biofuels and waste (2.2%), hydro (1.5%), and geothermal/solar/wind (0.2%).

Figure A5.3: Energy Production, 1970-2015



Source: IEA Statistics

Figure A5.4: Total Primary Energy Supply, 1970-2015



Source: : IEA Statistics

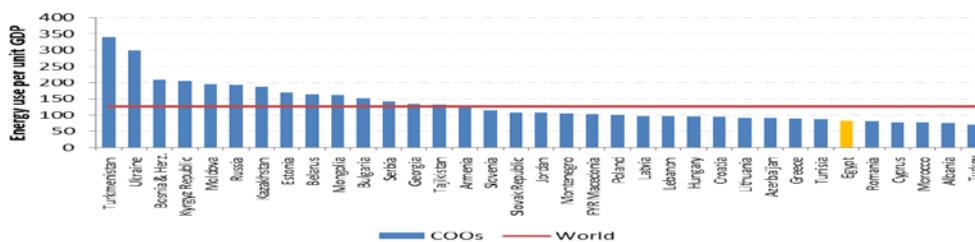
Egypt has a high level of import dependency as domestic production of primary energy supply declined by 18% from 2010 to 2015 as imports more than doubled. Egypt's oil and gas import dependency is an important energy security concern and in 2015 oil represented 50% of the total primary energy supply and gas 46%. Renewable energy (RE) remained largely untapped with only 1% of electricity generation stemming from non-hydro renewables, until 2017 when the Benban solar power facility was developed in Southern Egypt.

Total electricity generation was forecast by IEA to grow by 65% between 2016 and 2025. Under current policies, most of the growth will come from RE – wind installed capacity is projected to grow 3 times and solar capacity could grow 50 times. The growth potential of RE in Egypt is driven by abundant wind and solar reserves and a favourable policy environment. Two-thirds of the country's geographic area has a solar energy intensity of more than 6.4 kWh/m<sup>2</sup>/day. At the Red Sea coast, the wind speed approaches 10 m/sec. The Egyptian government launched a feed-in tariff (FiT) support system for solar PV and wind in 2014, and set a competitive bidding process for build-own-operate (BOO) and engineering, procurement and construction (EPC) contracts.

Egypt's has recently discovered abundant sources of gas (Zohr project is the largest offshore natural gas field in the Mediterranean), which has encouraged the government to significantly increase natural gas production to boost the economy and enhance the country's self-sufficiency. In the light of these developments, there is a question over the future commitment of the government to increasing RE in the electricity generation.

In terms of energy efficiency (EE), Egypt ranks at a low level compared to other COOs and the world average, as shown in Figure A5.5. The industrial sector is the main final energy user, representing 35% of the country's energy demand, followed by transport (28%) and residential (22%).

Figure A5.5: Energy use (kg of oil equivalent) per \$1,000 GDP (constant 2011 PPP)

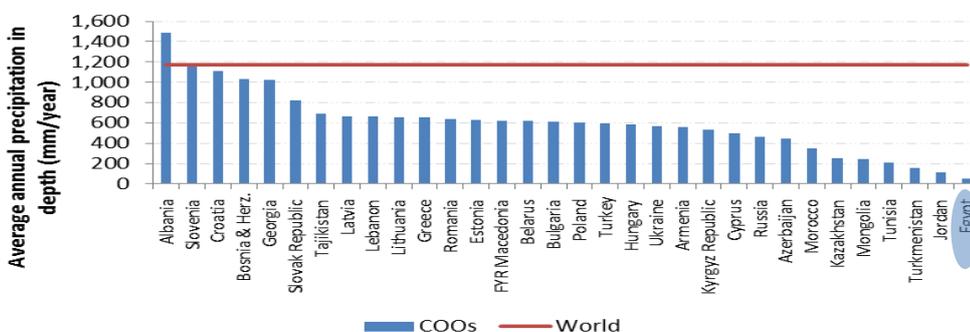


Source: WDI, EG.USE.COMM.GD.PP.KD

### 3. Water and Materials

Egypt is highly vulnerable to water stress, having both low rates of precipitation as shown in Figure A5.6 and limited internal renewable water resources, as shown in Figure A5.7.

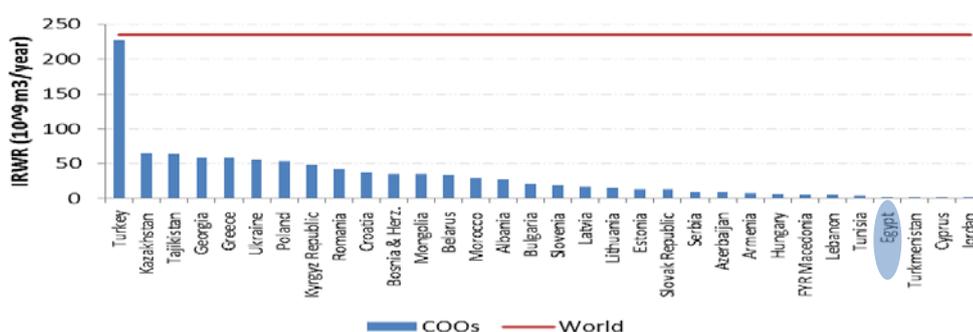
Figure A5.6: Long-term average annual precipitation in depth - Mm per year



Source: UN Stats, 2014 data

<http://www.fao.org/nr/water/aquastat/data/glossary/search.html?termId=4151&submitBtn=s&cls=yes>

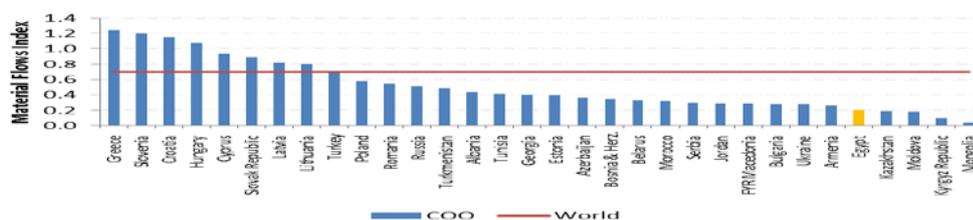
Figure A5.7: Total internal renewable water resources (IRWR)



Source: UN Stats, 2014 data

In regard to materials, Egypt has one of the lowest rates of extraction in the COOs.

Figure A5.8: Material Productivity of Egypt



Source: Material Flows

<http://www.materialflows.net/materialflowsnet/background/accounting/material-productivity-indicators/>

## 4. Vulnerability

The Egyptian terrain consists of a desert plateau that is interrupted by the Nile Valley and Delta, with 96% of the country being desert. There are no natural forest systems and most of the agriculture is concentrated near the banks of the River Nile. About 97% of the Egyptian population of 97.6mn people (2017) lives on 4% of Egypt's total land area in the Nile Valley and Delta. Agriculture remains the biggest employer (over 31.2% of the total population). Most of Egypt's population and infrastructure are concentrated in the Nile Delta and along the Mediterranean coast, which makes the country vulnerable to the impacts of sea level rise, particularly inundation and salt intrusion. Water scarcity is a critical risk as a consequence of rising temperatures.

EBRD's Climate Resilience Resource Centre<sup>xxx</sup> indicates there is risk of annual mean temperatures increasing by up to 2.0°C by 2030, up to 2.9°C by 2050 and up to 5.2°C by 2085. A strong increase in the duration of heat waves and reduction in the duration of cold spells is projected. There are significant risks attached to changes in the hydrology of the Nile. Projections range from a 25% increase in river flow, to a 75% decrease in river flow over the course of the century. Stream flow in the Nile is likely to increase or remain the same by mid-century, and then decline by end of century. Existing water scarcity issues are likely to become more extreme. The future mean sea level near Alexandria is projected to rise by up to 0.82 m by 2090. Any increases in sea level are likely to lead to further coastal erosion, increased flood risk and saltwater intrusion into Nile delta.

## 5. Policy Environment

The Egyptian government submitted its intended nationally determined contributions (INDC) to the UNFCCC on 16 November 2015, committing to adopt actions promoting climate resilience, energy and resource efficiency and use of renewables to address the country's climate challenges, although there was no measurable emissions reductions target. The government has developed a "Sustainable Development Strategy; Egypt's Vision 2030", which provides a framework that includes livelihood improvement and environmental protection targets.

In 2014 the government announced a plan to phase out energy subsidies by 2019, and this date was subsequently extended to 2022. The government adopted a National Energy Efficiency Action Plan (NEEAP) for the period of 2012-2015, which focused mainly on the power sector, establishing a cumulative EE target of 5%, and creating an EE Unit within the Council of Ministers to develop strategies and related policies. The government prepared a second plan for the years 2017-2020, and a number of energy efficiency codes for buildings and minimum energy performance standards with mandatory

labelling for the most common appliances. Despite these efforts, adequate EE regulations are lacking in the current policy framework and there is room for improvement.

A Renewable Energy Law was passed in 2014 that allowed for the approval by the cabinet of FiTs for purchasing electricity from solar and wind renewable sources, which has been an important step to attract private investors into the sector. The government has set a target of 20% energy production from RE by 2020.

Egypt lacks a comprehensive legal framework for water use and water management which exacerbates its vulnerability to climate change, especially in the agricultural sector. Significant investments are needed to upgrade and modernise public irrigation systems. The absence of detailed efficiency strategies for the agricultural sector, wastewater and desalinated water limit the use of a wider range of resources for irrigation and industrial consumption. Reduced availability of water, and extreme heat caused by climate change, expose power generation and transmission, and residential and commercial buildings, to climate risks.

## **6. EBRD Support**

### **6.1. Overview**

EBRD has only recently become engaged in Egypt, with operations starting in 2012.

### **6.2. Policy**

Initial engagement was guided by the Country Assessment for Egypt, approved by the Board on 31 October 2012, which included the following sustainability priority: "Increasing the role of cleaner fuels and RE, including solar energy, and improving EE so as to support energy security and enhance economic competitiveness." In comparison to many other Countries of Operation (COO), EBRD has not yet prepared a Sustainable Energy Action Plan (SEAP) for the country, and most of EBRD's support has been sector specific, focusing on issues such as developing a RE support system and investments; promoting gas flaring utilisation; and working on low carbon pathways for cement and downstream processing of oil.

A Country Strategy was approved by the Board in February 2017 which noted that support for Egypt's Green Economy Transition (GET) was one of 4 EBRD priorities in the country. The strategy indicated EBRD would support Egypt's efforts to diversify its energy mix by financing RE projects, and EE investments across sectors, including through SME EE credit lines. EBRD would seek to improve water efficiency by modernising water supply and waste water management, and through a pilot irrigation programme. EBRD would complement these investments with policy dialogue, and support the development of the regulatory and contractual framework for RE investments and regulation to incentivise the reduction of gas flaring.

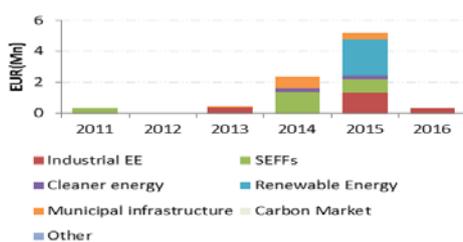
### **6.3. Technical Cooperation**

Up to 2016 when data collection on TC by EBRD was migrated to TCRS, and most data became inaccessible to management, Sustainable Energy Financing Facilities (SEFFs), Industrial EE and RE were the main types of outputs supported with technical cooperation (TC) grants. EBRD has provided policy advice to the Ministry of Petroleum and the Egyptian General Petroleum Company to quantify the annual amount of petroleum gas flaring in the country and identify possible ways to reduce it. Separately, EBRD provided a technical support programme to identify and provide solutions to improve EE in a number of Egyptian refineries. In 2015 EBRD prepared a Strategic Environmental and Social Assessment of RE

Projects in the East Nile area. Jointly with IFC, EBRD led policy dialogue to assist the authorities develop a legal and contractual framework for both private sector led and financed RE projects, initially focused on the solar FiT programme announced by the government at the end of 2014. EBRD indicated in its 2017 strategy it would to provide legal advisory support to improve the EE legislation.

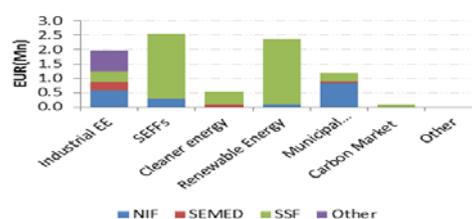
As shown in **Figure A5.9**, SEFFs were the main entry vehicle for CI, followed by RE. **Figure A5.10** shows that EBRD's Special Shareholders Fund (SSF) was the primary source of funding of TC in Egypt, mainly for SEFFs and RE, followed by the EU's Neighbourhood Investment Facility (NIF)

Figure A5.9: TC Funds: Activity over Time



Source: CI Database

Figure A5.10: TC Funds: Activity and Source Funds

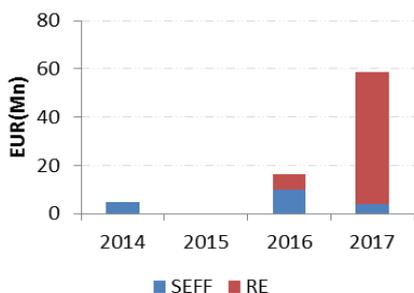


Source: CI Database

## 6.4. Non TC Support

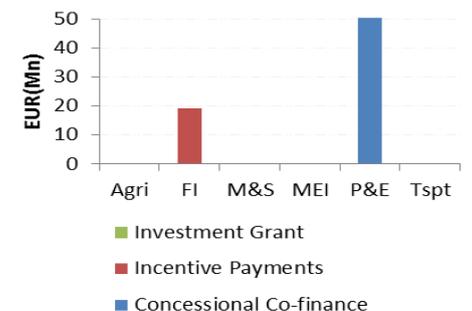
During the period 2014-2017 EBRD allocated funds to SEFFs in the form of grant incentive payments and RE in the form of loans provided on the same terms as the Bank's debt.

Figure A5.11: Non-TC Support over Time by Output



Source: CI Database

Figure A5.12: Non-TC Support by Type Instrument and Department



Source: CI Database

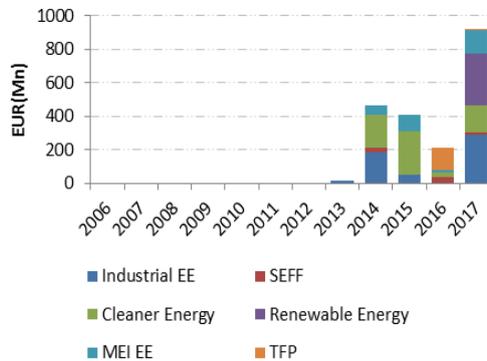
The grant funds were sourced from the EU's NIF. The 8 RE loan facilities were comprised of: 2 for the Infinity Solar project, and 6 for the Scatec Benban solar RE program. GCF was the largest source of Non TC funding in the form of loans.

## 6.5. Project Financing

EBRD's lending volumes reached about €900mn in 2017 indicating substantial scale of operations. It can be seen in **Figure A5.13** that the ABI loans with GET financing components and GET financing in **Figure A5.14** are almost identical, with the exception of the Trade Finance Program (TFP) component. Cleaner

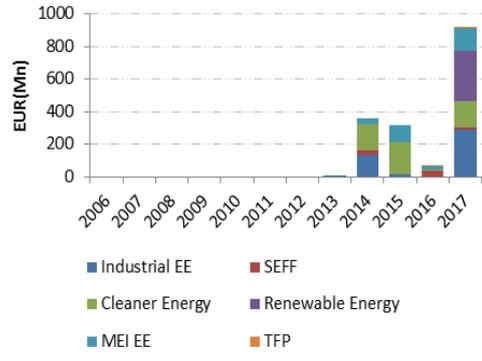
energy was the initial source of GET finance, and there were intermittent Industrial EE projects in 2014 and 2017. RE only started to feature in 2017, and dominated other GET outputs in that year. SEFFs and TFP have only generated a small volume of ABI and GET finance to date.

Figure A5.13: ABI over Time



Source: CI Database

Figure A5.14: GET financing over Time

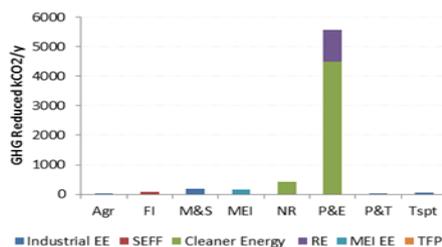


Source: CI Database

## 6.6. Project Outcomes

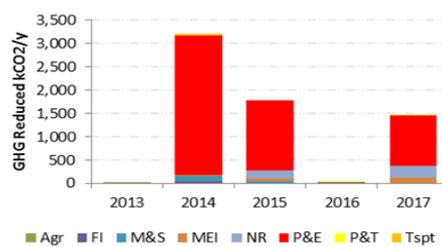
Cleaner energy was the primary sources of GHG savings in Egypt, through the Power sector EE project (45434) in 2014, and the Damanhour project (47336) in 2015. RE generated significant GHG savings, mainly through the Benban solar projects I-VI (47972- 47976, 49224) in 2017. P&E accounted for almost all of the EBRD's GHG savings in Egypt.

Figure A5.15: GHG Reduced kCO2/y by Output and Department



Source: CI Database

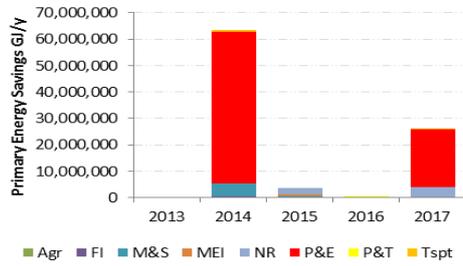
Figure A5.16: GHG Reduced kCO2/y by Department over Time



Source: CI Database

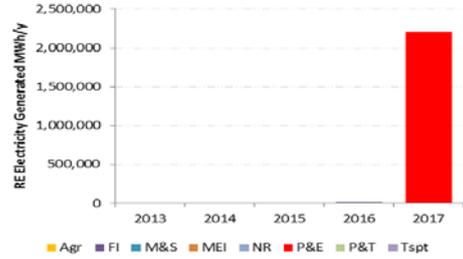
Similarly, P&E was the primary source of energy savings and RE generation, as shown in Figures A5.17 and A5.18.

Figure A5.17: Primary Energy Savings GJ/y by Department over Time



Source: CI Database

Figure A5.18: RE Electricity Generated MWh/y by Department over Time



Source: CI Database

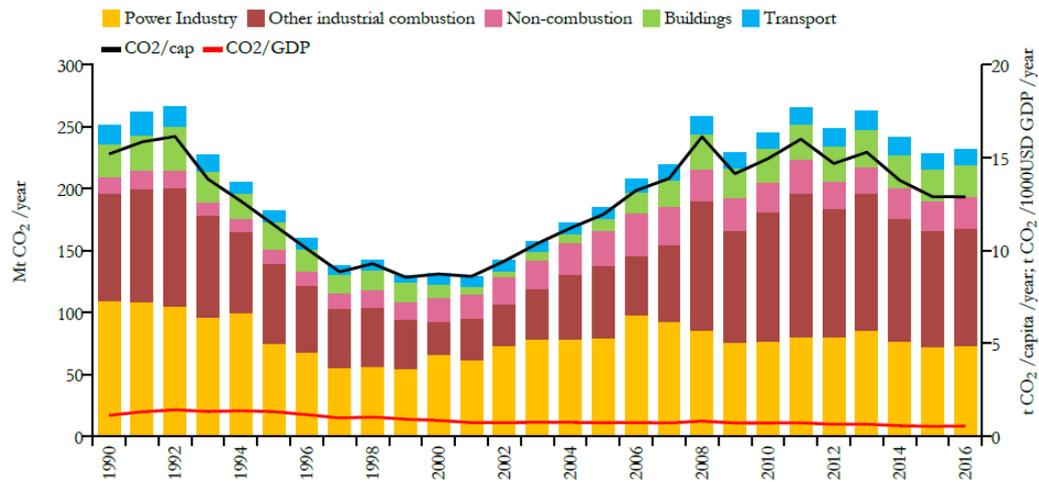
Property and Tourism (P&T) department was the main source of reported water and material savings through the Arabian Centres project, although in fact, this project was subsequently cancelled due to difficulties securing title to the land.

## Annex 6: Case Study - Kazakhstan

### 1. GHG Emissions

The level of CO2 emissions from fuel combustion in Kazakhstan increased by 43% from 2005 – 2015 and it is the largest emitter of greenhouse gases (GHG) in Central Asia.

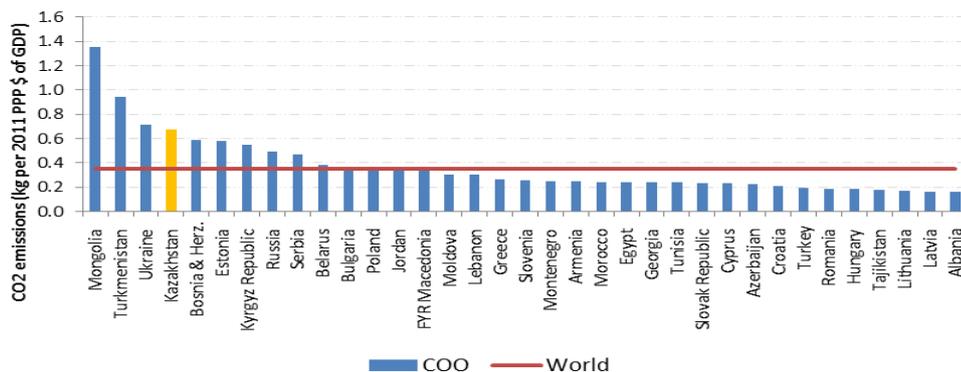
Figure A6.1: Fossil CO2 emissions by sector, Kazakhstan, 1990-2016



Source: EDGARv4.3.2 dataset

Kazakhstan was the 4th most carbon intensive economy in all of EBRD's Countries of Operation (COOs) in 2013. Kazakhstan's GDP is closely linked to energy production, and in 2013 the oil industry accounted for 30% of GDP and 50% of exports. The industrial sector accounted for about 50% of emissions, and this sector is dominated by coal. The power sector accounted for about 30% of emissions, and it is reliant on oil and gas.

A6.2: Carbon Intensity per unit GDP, Kazakhstan, 2013

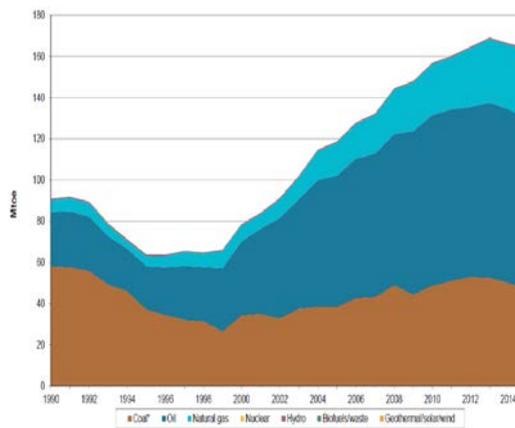


Source: WDI, CO2 emissions (kg per 2011 PPP \$ of GDP)

## 2. Energy

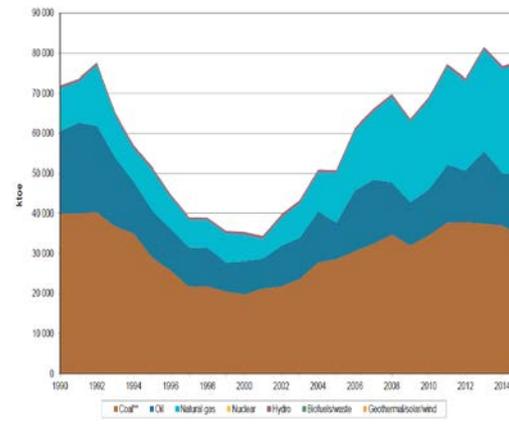
International Energy Agency (IEA) reported that total energy production in Kazakhstan between 1998 and 2015 increased by 130% driven by oil and gas discoveries in the Caspian region, as shown in **Figure A6.3**. Coal is the primary source of energy and it accounted for 43% of the total primary energy supply in 2015. Gas has become an increasingly important source of energy in recent years, accounting for 35% Total Primary Energy Supply (TPES) in 2015. In comparison, renewable energy (RE) in 2015 was almost non-existent, apart from 1% primary energy sourced from hydro, as shown in **Figure A6.4**.

Figure A6.3: Energy Production 1970-2015



Source: IEA, <http://www.iea.org/statistics/>

Figure A6.4: Total Primary Energy Supply 1970-2015

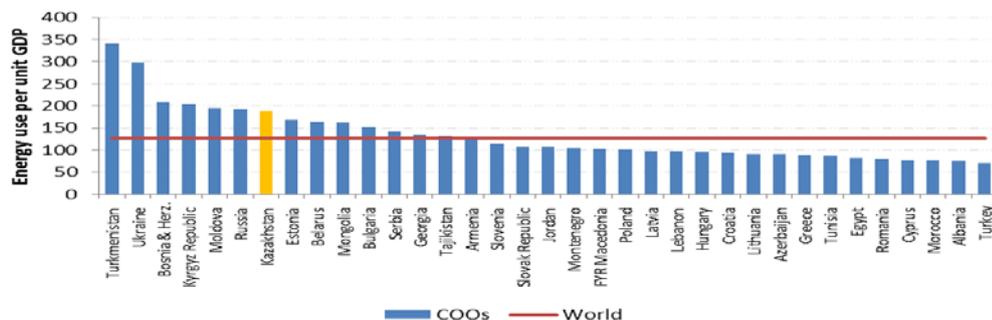


Source: IEA, <http://www.iea.org/statistics/>

In 2016, Kazakhstan was the 10th largest coal producer in the world. It ranked among the top producers of crude oil (16th) and natural gas (23rd). Kazakhstan's energy production covers more than twice its energy demand. This excess capacity enables Kazakhstan to be major energy exporter. In 2016, the country was the 7th largest coal exporter in the world, 12th crude exporter and 20th natural gas exporter. The industrial sector is the primary driver of final energy consumption in Kazakhstan and coal is its main energy source. The residential sector is the second largest final energy consuming sector. Oil is mainly used for transport purposes.

Kazakhstan is ranked moderately energy inefficient compared to other COOs and the World average.

Figure A6.5: Energy use (kg of oil equivalent) per \$1,000 GDP (constant 2011 PPP)



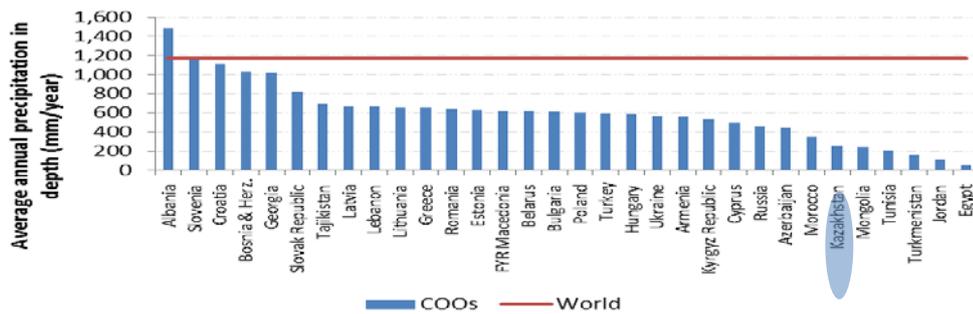
Source: WDI, EG.USE.COMM.GD.PP.KD

Currently, most of the electricity (75%) is produced by coal-fired power plants and RE is mainly sourced from hydropower plants built in Soviet times. Kazakhstan possesses significant RE resources such as wind, solar and hydro.

### 3. Water and Materials

Kazakhstan is vulnerable to water stress, as it has low rates of precipitation, as shown in Figure A6.5.

Figure A6.6: Long-term average annual precipitation in depth - Mm per year

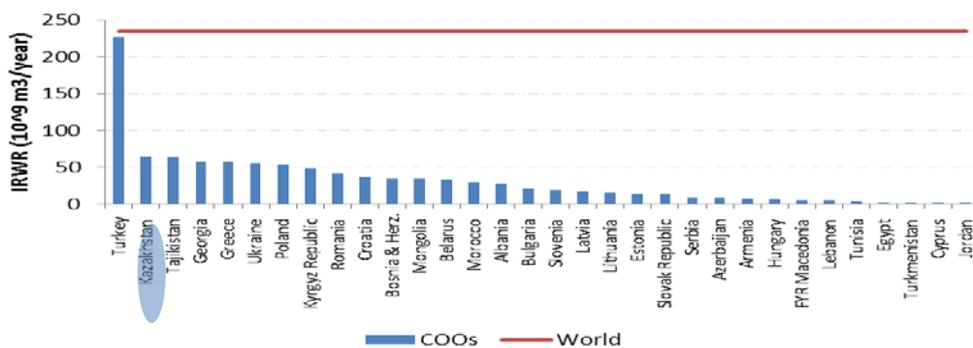


Source: UN Stats, 2014 data

<http://www.fao.org/hr/water/aquastat/data/glossary/search.html?termId=4151&submitBtn=s&cls=yes>

In comparison, Kazakhstan has relatively high reserves of water compared to most other COOs, although these levels are far below international averages.

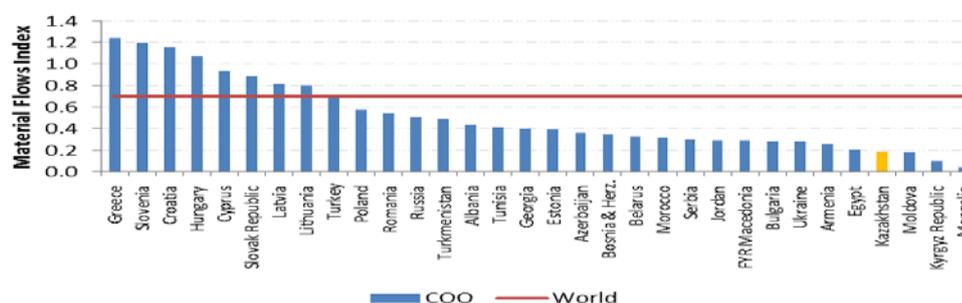
Figure A6.7: Total internal renewable water resources (IRWR)



Source: UN Stats, 2014 data

Kazakhstan is relatively efficient in its use of materials and has one of the lowest rates of extraction in the COOs.

Figure A6.8: Material Productivity of Kazakhstan



Source: Material Flows

<http://www.materialflows.net/materialflowsnet/background/accounting/material-productivity-indicators/>

## 4. Vulnerability

Kazakhstan is situated in north-central Eurasia and it is the ninth largest country in the world based on the size of its territory – 2,724.9 square kilometres. Kazakhstan's terrain is diverse, being situated in 4 climate zones: forest-steppe; steppe; semi-desert and desert. Nearly 75% of the country is at increased risk of adverse environmental impact to climate change. EBRD's Climate Resilience Resource Centre<sup>xxi</sup> indicates there is risk of annual mean temperatures increasing by up to 2.0°C by 2030, up to 3.0°C by 2050 and up to 5.6°C by 2085. There is expected to be an increase in the duration of heat waves and the probability of drought. Between 1951 and 2006 the Caspian Sea level increased by approximately 36cm per decade and it is projected to increase by up to 163cm by 2100.

Kazakhstan is vulnerable to climate change impacts, especially increased water scarcity and desertification leading to reduced agricultural productivity. Kazakhstan lacks water, and precipitation is limited, particularly in the central and southern regions. Irrigation consumes more than 50% of total water consumption, followed by industry (24%) and municipal use (3%). Municipal water supply and wastewater treatment services are poor due to old infrastructure, under investment and lack of maintenance. There is increasing competition with neighbouring countries over water resources.

Air pollution is a problem, particularly in major cities and industrial areas, where the recorded level of toxic substances is 5 to 10 times higher than maximum permissible concentrations. The main source of air pollution is the energy sector (heat and electricity generation using coal), followed by oil and gas and metallurgy. Although the existing legal framework is broadly in line with international practices, there are critical gaps relating to implementation of best available technologies (BAT) and cleaner production, prevention, control and monitoring of industrial emissions.

## 5. Policy Environment

In 2009 Kazakhstan ratified the Kyoto Protocol to the UN Framework Convention on Climate Change and it is a Party to Annex 1. Kazakhstan signed the Paris Agreement in August 2016 and it received support from EBRD to prepare its Nationally Determined Contribution (NDC). Kazakhstan intends to achieve an economy-wide target of 15% [unconditional target] - 25% [conditional target] reduction in GHG emissions by 2030 compared to 1990. The government has prepared a **Green Economy Concept** (covering the period to 2050) which is a top national priority. Kazakhstan has been a pioneer in the region and amongst middle-income countries worldwide in establishing a domestic emission trading system in 2013 for the

industrial and power sectors, which is now operational.. Kazakhstan is a member of the International Renewable Energy Agency (IRENA).

A Law on Energy Saving was first adopted in 1997 and it was replaced with a new law in 2012. The government has been developing elements of sustainable energy legislation through the introduction of the 2009 Law on the Use of Renewable Energy Sources, followed by amendments in 2013 and 2016. The government supports the development of renewables, and the Green Economy Concept indicates the share in the energy mix is planned to increase from 3% in 2020 to 6% in 2025, 30% in 2030 and 50% in 2050. Despite these initiatives, sustainable energy investment in Kazakhstan is constrained by high levels of state involvement in the economy and low energy prices driven by the ready availability and low price of fossil fuels, affordability concerns, and persistent regulatory shortcomings.

Energy tariffs do not reflect financial or environmental costs and as a result price signals do not provide incentives to use energy efficiently and to invest in RE projects. Households pay nearly 11 times less for gas than the EU-28 average and 6 times less for electricity. Although direct consumer subsidies have largely disappeared, indirect subsidies are still provided by the government, such as setting the tariffs below the full cost of energy provision. Some pilot tariff reforms are ongoing to move heating and water utility tariffs to full cost recovery, and there are plans to abolish cross-subsidisation.

The government has set an indicative target for generation of solar and wind energy in the total energy mix of 3% to be reached by 2020. While a legislative framework was established for RE in 2009, and revised in 2013, there continues to be deficiencies in renewables tariff policy, and the creditworthiness of the Financial Settlement Centre, which is responsible for paying the feed-in tariffs (FiTs), grid connection issues, and the stability of FiTs due to Tenge volatility. Other challenges include the need to reduce transmission and distribution losses through upgrades of infrastructure, improved payment collection, and introduction of an incentive-based distribution tariff methodology that would support the development of new capacity and rehabilitation of old, inefficient and polluting plants.

There is a need to raise awareness on energy efficiency (EE) which suffers from an absence of data and benchmarks. The financial sector is weak, making it difficult to provide SMEs and households with finance through the use of dedicated EE credit lines to make sustainable energy investments. In the municipal sector, affordability constraints are limiting investment in sustainable energy facilities. In the oil and gas industry flaring of associated petroleum gas remains an issue.

There is a need to develop a legal framework for EE, institutional capacity for project development, and implement a RE legal and regulatory framework that attracts project developers. Further increases in energy tariffs are required to provide incentives for more efficient energy use and RE development. A dedicated independent institution is required that deals with EE and RE. At present the Ministry of Industry and Infrastructural Development is primarily responsible for EE, whereas Ministry of Energy covers RE, climate change and broader environmental issues..

## **6. EBRD Support**

### **6.1. Overview**

EBRD has been engaged in Kazakhstan almost from the start of the CI program, commencing operations in 2007.

## 6.2. Policy

In 2008 EBRD signed a Sustainable Energy Action Plan (SEAP) with the government that identified areas where EBRD could assist the government to meet its Climate Change goals. EBRD provided assistance to the government to access up to €200mn from the Clean Technology Fund (CTF) and provided further assistance in 2009 and 2013 to prepare a CTF Investment Plan. In the period 2009 to 2013 EBRD's investment in SEI projects and policy dialogue in Kazakhstan increased considerably, in line with the priority areas identified in the SEAP and the CTF Plan. By 2013, a total of €605mn of SEI finance had been signed, with an additional €18mn concessional finance committed from the CTF and €11mn of technical co-operation (TC) funding. EBRD implemented the following activities with these funds:

- Multi-year policy dialogue in support of EE and RE legislation (initially defining FiT regulations and subsequently supporting a shift from FiT to auctions, offtaker creditworthiness, PPA bankability etc), power sector regulation for a wholesale electricity market, and a carbon market emissions trading system that started operations in 2013;
- Investments in over 500 MW of new RE capacity under the Kazakhstan Renewable Energy Framework (all in LCY), power generation and networks, and municipal infrastructure; and
- Enabling access to climate co-finance (with EBRD, ADB, and IFC) of up to USD 200mn from the CTF; and USD 110m from the GCF.

In EBRD's strategy for 2013-2017 the promotion of low-carbon growth and EE was one of 3 strategic priorities. EBRD provided assistance to the government to prepare the Green Economy Concept (covering the period to 2050). A revised Green Economy Law was introduced in June 2016 that improved the regulation of RE resources, ecology and subsoil use. Amendments provided for regular indexing of FiTs to take into account foreign currency exchange rate changes, and brought more certainty to producers of RE. While the legal framework to support and enhance EE in Kazakhstan was strengthened, implementation of regulations has been slow and institutional capacity is low. There is a need to remove further legal and regulatory barriers to create a competitive energy market, and **provide support for sustainable sector development by creating a regulatory framework for the development of RE sources and introduce cost-reflective energy tariffs.**

EBRD intended in the period 2013-2017 to continue to assist the government to develop a power generation market through investment and policy dialogue; and support institutional strengthening and commercialisation of private, and where appropriate state, generating and distribution companies, including renewables. The emphasis would be on the **development of effective regulation, removal of cross-subsidies and introduction of cost reflective tariffs for consumers.** For the period 2013-2017 EBRD's strategy indicated it could support the government in the following areas:

- designing market-based incentives to invest in power generation, developing revisions to the energy efficiency legislation and regulations, further developing FiTs and secondary regulations and legislation for RE;
- improving environmental standards in the power sector;
- developing a regulatory framework for the waste management sector;
- developing a water sector efficiency action plan;
- developing a regulatory framework for green buildings;
- developing a regulatory framework for promoting EE in industry; and

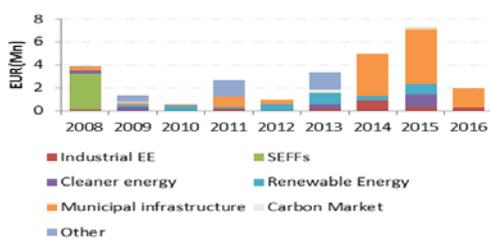
- supporting the development of the GHG Emissions Trading System.

EBRD indicated in its country strategy it could develop a **dedicated lending facility for small-/medium RE projects**, and pursue large-scale RE projects. EBRD would establish with Global Environment Facility (GEF) support a **facility to finance technology transfer (FINTEC) and provide training to SMEs**, and support the government to strengthen regulations and legislation to improve EE. EBRD could support efforts to promote better utilization of associated petroleum gas to **reduce gas emissions**. EBRD intended to provide support to **develop the carbon market** by setting carbon trading standards and knowledge transfer on carbon market related issues, such as Monitoring, Reporting and Verification and energy and carbon management systems.

### 6.3. Technical Cooperation

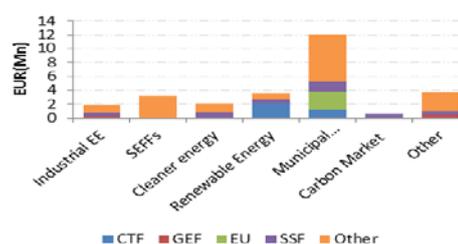
Up to 2016 when data collection on TC by EBRD was migrated to TCRS, and most data became inaccessible to management, most of EBRD's TC funding was directed to Municipal and Environmental Infrastructure (MEI), primarily for project preparation, and developing the RE Framework. In 2015 EBRD signed an Enhanced Partnership Framework Agreement with the government, where a Technical Cooperation (TC) co-financing arrangement was agreed to support infrastructure development. The Kazakh TC Fund, bilateral donors, the Special Shareholder's Fund (SSF), the GCF and the CTF have been the most important sources of TC.

Figure A6.9: TC Funds: Output over Time



Source: CI Database

Figure A6.10: TC Funds: Output and Source Funds



Source: CI Database

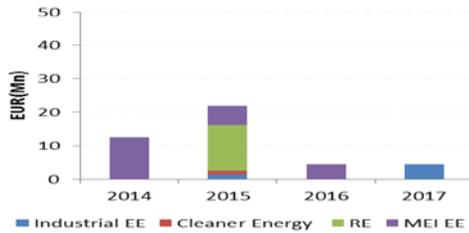
EBRD deployed TC resources for policy dialogue and prepared energy audits and market assessments in support of regulatory improvements and investments in MEI and RE, mainly through E2C2 and MEI. EBRD assisted the Ministry of Energy to create a contractual framework for RE, the regulatory framework under Kazakhstan's Concept for a Transition to a Green Economy, and supported the development of the Kazakh Emission Trading Scheme and the country's capacity to meet its commitments under the Paris Climate Agreement. EBRD signed a Memorandum of Understanding with the Astana International Financial Centre to promote good corporate governance in the financial sector, develop money and capital markets, and establish a Green Financial System. As part of this memorandum, the EBRD and the AIFC undertook a TC assignment to scope out a Green Financial System. Finally, the EBRD undertook a policy dialogue activity on industrial energy efficiency as part of its RESET programme.

#### 6.3.1. Non TC Support

Figure A6.11 indicates that similar to TC, over the period 2014-2017, Non-TC support in Kazakhstan was primarily allocated to MEI EE, and to a lesser extent RE. The RE assistance was structured as concessional co-finance (5 projects) and a small amount of incentive payments (3 projects). As shown in

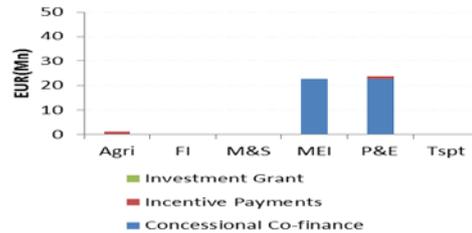
Figure A6.12, these Non TC support funds were allocated equally to MEI and Power and Energy (P&E), almost exclusively as concessional loans.

Figure A6.11: Non-TC: Type Output over Time



Source: CI Database

Figure A6.12: Non-TC Support by Department and Type of Support



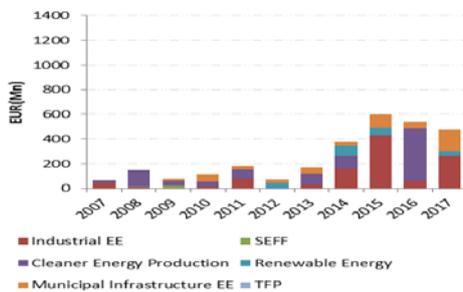
Source: CI Database

CTF was the largest source of Non TC funding for the period up to 2017 and it was used to develop the Burnoye Solar Power Plan.

### 6.4. Project Financing

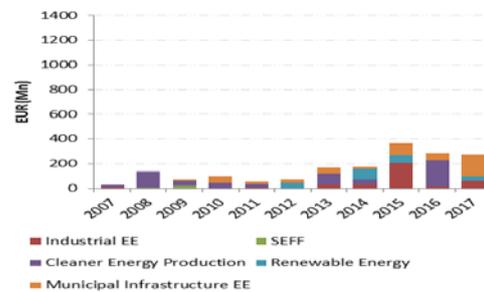
EBRD's lending operations have primarily focused on industrial EE and some cleaner EE projects. Volumes were relatively low compared to Egypt, with the GET component averaging over €300mn per annum over the period 2015-2017.

Figure A6.13: GET Projects: ABI by Output over Time



Source: CI Database

Figure A6.14: GET ABI financing Component Over Time

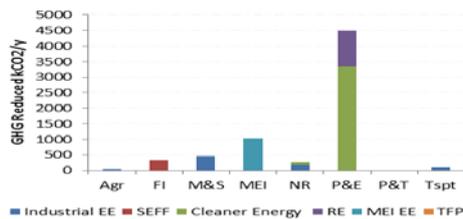


Source: CI Database

### 6.5. Project Outcomes

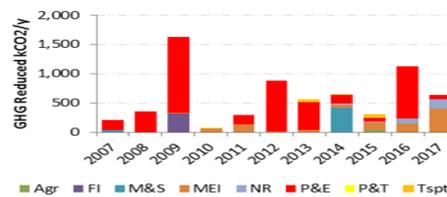
Cleaner Energy was the main source of projected ex ante estimates of GHG savings in Kazakhstan through the CAEPCo (Northern Lights) project approved in 2009, and various electricity and gas generation and transmission projects. RE was a minor source of GHG reductions, mainly through the Shardara Hydro Modernization program. The Bank has financed over 500MW in Kazakhstan to date with significant GHG reduction benefits arising from those investments. There are also gas infrastructure and EE investments in the power sector and networks..

Figure A6.15: GHG Reduced kCO2/y by Output and Department



Source: CI Database

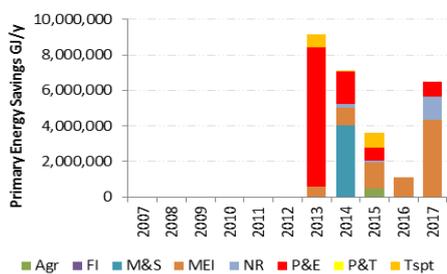
Figure A6.16: GHG Reduced kCO2/y by Department Over Time



Source: CI Database

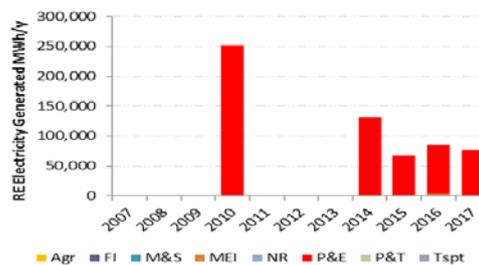
Cleaner Energy projects implemented by P&E in 2013 such as the CAEPCO Energy Efficiency Project were the primary sources of energy savings followed by MEI DH Meters and IHS Programme project in 2017. P&E's projects such as Aktobe CHP rehabilitation approved in 2010 were the main sources of RE generation. These figures may be overstated as projects such as Yereymentau Wind Farm have not yet been implemented, and the KTZ Balance sheet restructuring would not be classified as GET under current GET accounting rules.

Figure A6.17: Primary Energy Savings GJ/y by Department over Time



Source: CI Database

Figure A6.18: RE Electricity Generated MWh/y by Department over Time



Source: CI Database

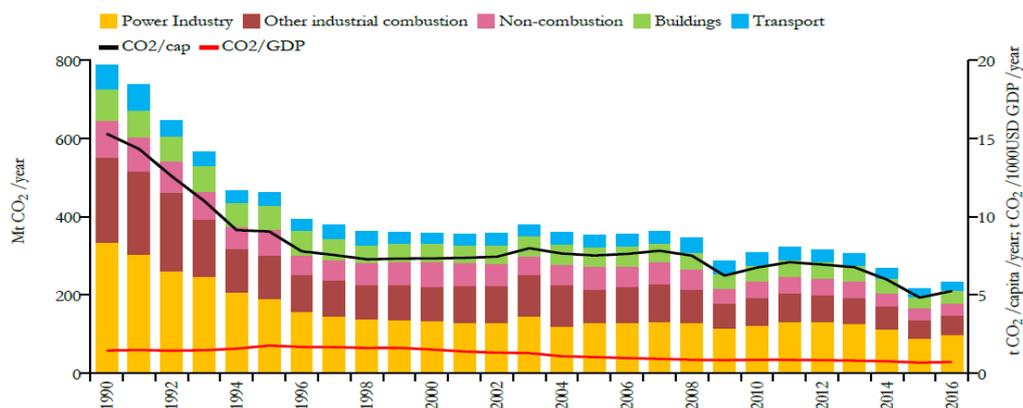
Water savings have been limited apart from MEI's South Kazakhstan Water Supply Project approved in 2017. It was noted in the risk assessment attached to the loan approval document that while water usage would become more efficient as a result of the Borrower's investment programme, the overall result would be an increase in water usage, with the **sustainability of associated water supply not being entirely clear**. Natural Resources generated material savings through the Voskhod Chromium project approved in 2015, and the Shalkiya Zinc: Pre-Privatization Loan approved in 2017.

## Annex 7: Case Study - Ukraine

### 1. GHG Emissions

The level of emissions in Ukraine fell by 36% between 2005 and 2015. The contribution of the various sectors to the country's emissions profile has been stable.

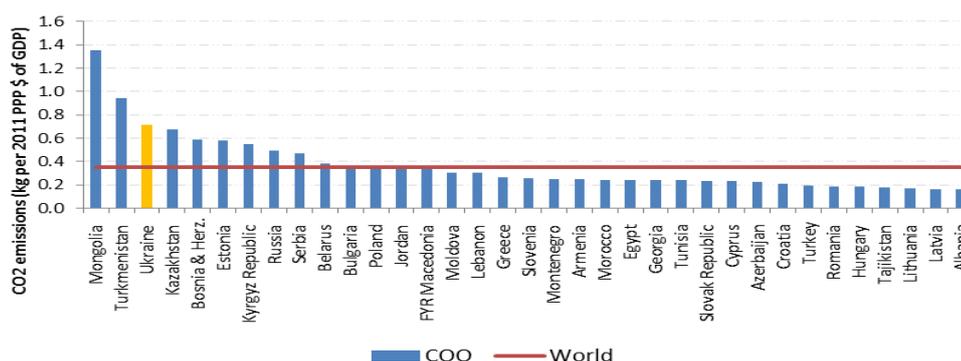
Figure A7.1: Fossil CO2 emissions by sector, Ukraine, 1990-2016



Source: EDGARv4.3.2 dataset

In 2011, Ukraine ranked among the 3 most carbon intensive countries among all parties to the UN Framework Convention on Climate Change (UNFCCC). About 85% of the greenhouse gas (GHG) emissions in 2016 were energy related. Despite the fall in emissions, Ukraine was still the third most carbon intensive country in EBRD's Countries of Operation (COOs) in 2014.

Figure A7.2: Carbon Intensity per unit GDP, 2014



Source: WDI, CO2 emissions (kg per 2011 PPP \$ of GDP)

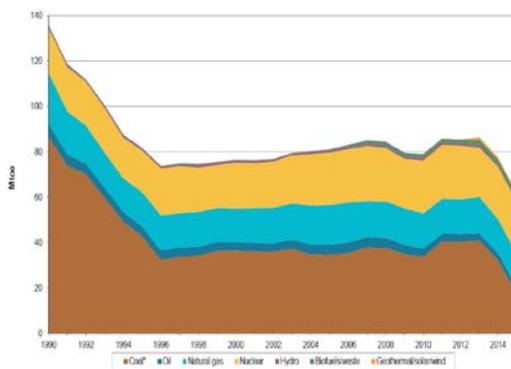
### 2. Energy

Ukraine is one of the most energy-intensive and energy inefficient countries in the EBRD region. It can be seen in Figure A7.3 that the total energy supply in Ukraine between 2010 and 2015 declined by 32% and total final energy consumption declined by 31%. The share of coal and oil remained stable at 30% and 10% respectively, with the balance being sourced from natural gas (29%) and nuclear (26%). The share of

renewable energy (RE) is low, accounting for 2-3 % of production, and it was mainly sourced from biofuels and waste. Wind and solar potential in Ukraine is modest, compared to regions such as North Africa. Ukraine depends on imports for around 75% of its oil consumption, 40% of its natural gas and 35% of its coal.

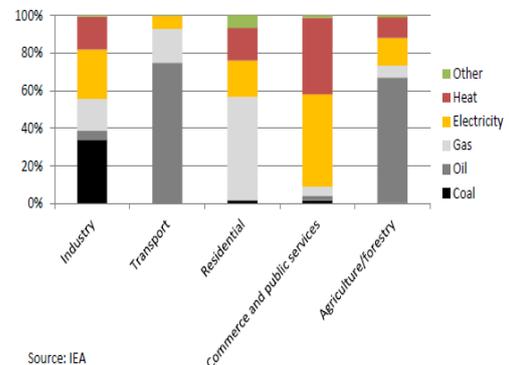
Industries are the main final consumers of coal and over the last 10 years, their share of final energy consumption gradually decreased from 40% in 2005 to 32% in 2015. Industrial energy consumption accounted for 32% of the final energy consumption in 2015, and it is high as Ukraine is the world's sixth largest steel exporter. The industrial sector is reliant on coal for a large proportion of its energy. Households are the largest final consumers of natural gas in Ukraine. It can be seen in Figure A7.4 that both transport and agriculture are reliant on oil fuel.

Figure A7.3: Energy Production, 1990-2015



Source: IEA

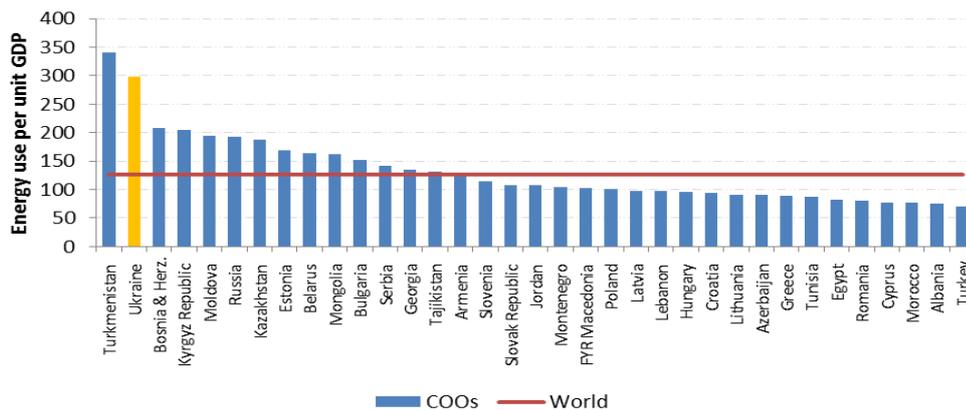
Figure A7.4: Total final energy consumption by sector and energy source, 2015



Source: IEA

Ukraine is ranked second after Turkmenistan in terms of inefficiency of energy use, and it performs poorly against the World average.

Figure A7.5: Energy use (kg of oil equivalent) per \$1,000 GDP (constant 2011 PPP)

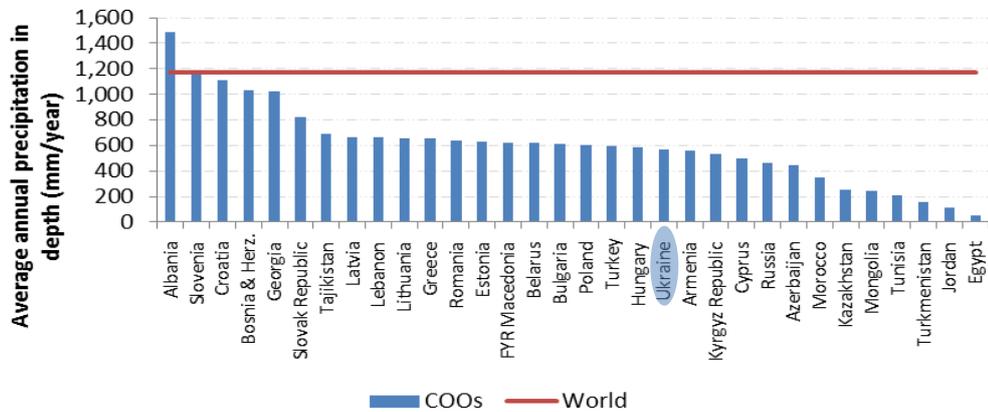


Source: WDI, EG.USE.COMM.GD.PP.KD

### 3. Water and Materials

Ukraine's precipitation level is just above the "semi-arid zone" average of 500mm per year, indicating it is exposed to risks of water shortages.

Figure A7.6: Long-term average annual precipitation in depth - Mm per year

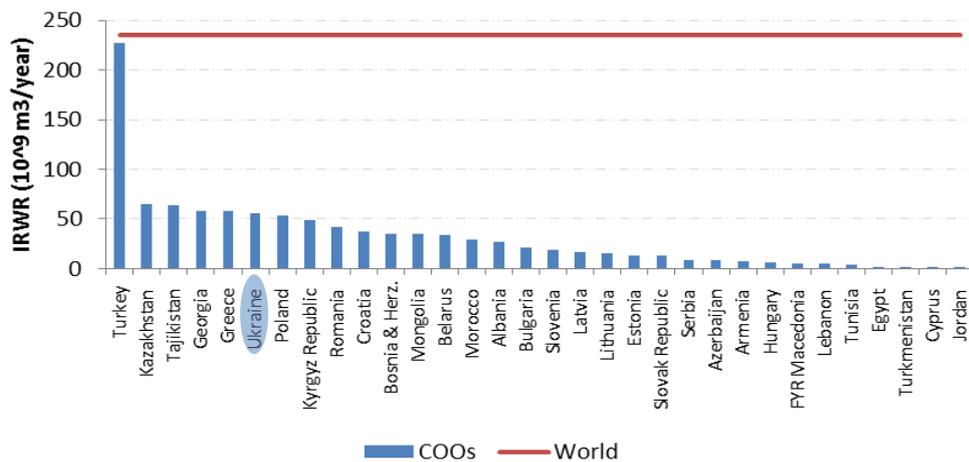


Source: UN Stats, 2014 data

<http://www.fao.org/hr/water/aquastat/data/glossary/search.html?termId=4151&submitBtn=s&cls=yes>

Offsetting this result, Ukraine has relatively abundant water resources compared to other COOs, although substantially less than the world average. The industrial sector accounts for 48% of water withdrawal, followed by agriculture (30%) and municipalities (22%).

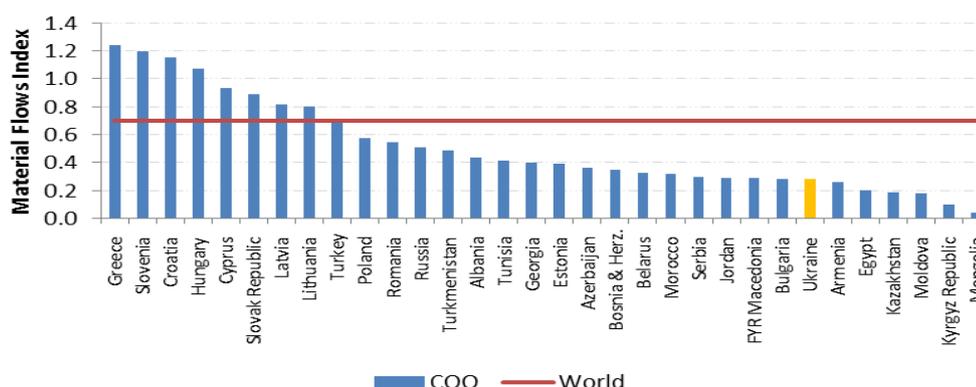
Figure A7.7: Total internal renewable water resources (IRWR)



Source: UN Stats, 2014 data

In regard to materials, Ukraine has one of the lowest rates of extraction in the COOs.

Figure A7.8: Material Productivity of Ukraine



Source: Material Flows

<http://www.materialflows.net/materialflowsnet/background/accounting/material-productivity-indicators/>

## 4. Vulnerability

Ukraine is one of the largest countries in Europe with substantial natural resources, including sources of energy such as coal and large mineral deposits. Around 17% of its territory is covered by forests and about half of the country is covered with exceptionally fertile chernozem (“black earth”) soil. Most of the country is upland plain, with the Carpathian Mountains in its western part and a lowland area of wooded bogs and marshlands in the north. Two rivers of high regional importance, the Dnipro (Dnepr) and the delta of the Danube are located in Ukraine.

The environment in Ukraine was negatively affected by the legacy of extensive agriculture, mining, metallurgy, heavy industries and nuclear power sectors that were development priorities in Soviet times. Since independence in 1991, the initial collapse of industries reduced pollution, but subsequent economic growth led to deterioration in air and water quality and land contamination. The Chernobyl disaster further contributed to these environmental problems. There are concerns around the quality of the Dnipro River water as a main source of drinking water, poor air quality in major cities caused by pollution from industries and transport, hazardous waste accumulation with high environmental and health risks (e.g., potassium mine tailings in Kalush, uranium ore waste in Dneproderzhinsk), industrial and solid waste storage and disposal problems, soil erosion and contamination, deterioration of natural resources and loss of biodiversity, and high GHG emissions among other issues.

EBRD’s Climate Resilience Resource Centre<sup>xxxii</sup> indicates there is risk of annual mean temperatures increasing by up to 2.0°C by 2030, up to 3.0°C by 2050 and up to 5.0°C by 2085. A strong increase in the duration of heat waves and a slight reduction in the duration of cold spells are projected. There is increased risk of extreme events such as droughts driven by temperature increase, variable rainfall and evapotranspiration, and floods driven by greater frequency and intensity of heavy rainfall events. Coastal locations on the Black Sea have experienced increases in mean sea level in the order of 1.5 mm/year over the past 50 years. Future rates of mean sea level rise on the Black and Azov Sea are uncertain but are projected to rise by up to 1.15m by 2100. Coastal erosion is projected to intensify with future sea level rise.

## 5. Policy Environment

Ukraine signed and ratified the Kyoto Protocol as an Annex 1 Party in 2004, signed-up to the Paris Agreement, and it has taken steps to develop a carbon market and introduced a carbon tax. A National Environmental Policy until 2020 was enacted in December 2010. The Energy Strategy of Ukraine 2035 aims to achieve an energy efficient (EE) economy and emphasises the role of RE. The Comprehensive National Programme on Energy Conservation aims to reduce energy-intensity through technological and structural changes. Ukraine's Nationally Determined Contribution states it "will not exceed 60% of 1990 GHG emissions level in 2030."

Ukraine became a formal member of the European Energy Community in February 2010. This step allowed Ukraine to become integrated into the European energy security system, and spurred reforms in the spheres of energy use and EE. Ukraine made substantial commitments to adhere to a number of EU Directives in: the EE and energy safety sectors; their integration into Ukraine's legal, regulatory and institutional frameworks; and implementation of specific measures that would lead to improved energy use and an increase of RE in the total energy production of Ukraine (up to 10% by 2020).

Despite these actions, progress on reform in Ukraine has been quite slow compared to other large COOs due to political instability following the Orange Revolution in 2004. Ukraine joined the World Trade Organisation in 2008, and this event helped introduce market reflective prices in sectors such as agriculture and manufacturing. Ukraine was negatively affected by the Global Financial Crisis (GFC) in 2009, due to a reliance on imported gas, declining prices for commodities such as steel, high levels of public sector debt, and high foreign currency refinancing requirements in the private sector. In 2010, the government agreed to a structural reform program with the IMF but progress has been slow. There was substantial political and economic instability in 2014 that led to a currency devaluation of 97% in that year alone and non-performing loans in the financial sector reached 25% by mid 2015.

The basic laws for EE have been in place for more than a decade but further improvements are required, as only limited results have been achieved to date. An EE agency exists but lacks capacity to implement reforms. Low energy tariffs, cross-subsidies and the lack of inclusion of environmental costs provide limited price signals to promote EE and invest in RE projects. RE legislation has been developed that includes measures for feed-in tariffs (FiTs) and over 300 projects with total capacity (non-large hydro) of about 2,100 MWe . National Renewable Energy Action Plan for Ukraine, which was adopted by the Cabinet of Ministers of Ukraine in October 2014, prioritizes the development of RE and commits to increase its share in the energy mix to 11% by 2020. In 2016 that share was about 6%, most of which was provided by large, Soviet-era hydropower plants.

## 6. EBRD Support

### 6.1. Overview

EBRD has been engaged in CI operations in Ukraine from the start of the CI program, commencing in 2006, and it has continued to be a major priority in country strategies since that time.

### 6.2. Policy

EBRD's Country strategy for 2007-2010 stated that the promotion of EE and security, environmental protection and sustainable use of natural resources throughout all sectors of the economy would be 1 of 5 priorities. Initially EBRD made good progress on EE projects, but the GFC caused a decline in operations

in 2009, and the focus of policy dialogue shifted to stabilization of the financial sector. The main driver of EBRD's program at that time was the **Ukraine Energy Efficiency Programme (UKEEP)** – launched in 2006 and completed in 2011. UKEEP was a €150mn investment programme with TC funding provided by Austria, Sweden and the EU. UKEEP was a credit facility developed by the EBRD and managed by Ukrainian banks, targeting private companies looking to invest in EE or RE projects.

Policy dialogue with the Ukrainian authorities and EBRD financing activities was guided by a **Sustainable Energy Action Plan (SEAP) which EBRD and the government agreed to prepare in 2009**. The SEAP identified areas where EBRD could provide assistance on issues such as industrial energy efficiency, clean power and energy, municipal infrastructure and buildings, carbon finance and targeted credit lines to small businesses. The SEAP indicated there would be a review of tariff legislation, and legal frameworks would be developed for RE and EE in residential and public buildings. The implementation of the SEAP would be supported by the EU's Eastern Europe Energy Efficiency and Environmental Partnership (E5P) initiative that provided grant and TC funding.

The building sector (and in particular residential buildings) was among the key sectors outlined for cooperation in the SEAP. As a result, since 2009, EBRD has provided on-going policy support to the government on residential energy efficiency issues. The EBRD participated in the Working Group on Buildings EE chaired by the Ministry of Housing and Communal Services. In addition, EBRD provided technical assistance to the Ministry of Regional Development, Construction and Municipal Economy to put in place an enabling policy, legal and regulatory framework for EE investments.

It was anticipated in EBRD's Country Strategy for 2011-2014 that Ukraine's accession to the Energy Community with the EU and the decision to raise domestic gas prices to import parity over time would strengthen the gas and electricity sectors, and create conditions for greater EE. EBRD would support operations that integrated Ukraine into the European energy market, increased EE and reduced carbon emissions. In comparison to the gas sector, the power sector was unbundled and partly privatised, but the wholesale market was not yet operational, and power prices were not at full cost recovery, leading to inefficiencies. Municipal services were decentralised but utility tariff setting (eg water and district heating) was politicised and inefficient use of energy was a significant problem. EBRD indicated it would be a priority to support the development of legal and regulatory frameworks promoting clean energy and EE investments.

In the industrial sector, EBRD would scale up sustainable energy activities in the corporate sector primarily through the expansion and re-positioning of the industrial EE programme. EBRD would support the Ministry of Housing and Communal services to prepare enabling legislation and raise awareness to facilitate EE investments in the residential sector. EBRD would pursue projects that increased efficiency through rehabilitation and modernisation in the Ukraine's energy sector.

EBRD intended to use TA to support to the government and its clients at the project level to develop and implement a long-term approach to low carbon power supply rehabilitation and investment. EBRD would continue to support the diversification of alternative sources of energy such as RE and the rehabilitation of existing hydro power plants under the **Ukraine Sustainable Energy Lending Facility (USELF)**, a €50mn facility originally approved in 2009.

EBRD would continue to develop municipal infrastructure projects with energy efficiency scope in respect of district heating, water supply and waste water, solid waste, public transport, and residential and administrative buildings, with support from E5P. EBRD would continue to support the Ministry of Environmental Protection to increase the potential for carbon financing, including international emission trading. In 2011, EBRD provided TC for a Preparedness for Emissions Trading in the EBRD Region

(PETER) in 2011, and Phase 2, was approved in 2013. The project helped develop the carbon tax in Ukraine, and it is an important policy initiative as it establishes notion of carbon price and identifies how the tax could provide a basis for transition to emissions trading system and further carbon market development.

The strategy for the period 2015-2018 was not prepared by EBRD due to the problems in Crimea arising in March 2014. Subsequently, there has been further political and economic turbulence in East Ukraine which resulted in a relatively lower level of financing activity for the Bank. The new Strategy for Ukraine, approved by Board on 5 October 2018, BDS/UK/18-1 (Final) underpins the continued focus on CI.

### 6.3. Technical Cooperation

Ukraine receives a significant amount of technical cooperation (TC) grant funding for project preparation and to a lesser extent policy dialogue. Policy dialogue on RE between the EBRD and the Ukrainian government started in 2007 and was led by E2C2. The main efforts were on developing and approving basic legislation jointly with the parliament, Cabinet of Ministers, business, MDBs, donors and other stakeholders, initiated by the full-time E2C2 Business Development Manager in the Kiev Resident Office. Subsequently, 2 more staff members (of which one TC funded) joined the Kiev E2C2 team and together they are leading work on the ground and providing support and guidance to staff at EBRDHQ.

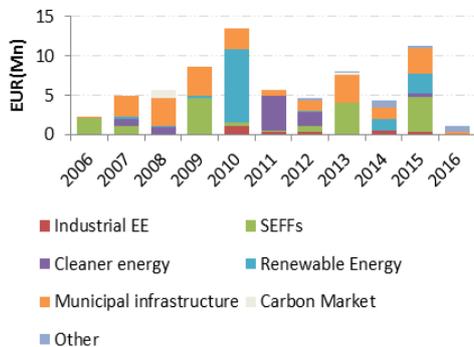
Implementation of the SEAP in 2009 started with development and launching of number of TC projects and financial facilities, mostly jointly with other MDBs and international financial frameworks including the Clean Technology Fund (CTF), Global Environmental Facility (GEF) and the E5P. Specific policy dialogue initiatives in the EE/RE sphere included:

- Assisting the National Electricity Regulatory Commission to further develop a regulatory framework for RE;
- Carrying out a Strategic Environmental Review on wind, small hydro and solar technologies;
- Assisting the Ministry of Regional Development, Construction, Housing and Communal Services to examine issues related to legal and regulatory frameworks and to raise general awareness about capacity and low penetration of EE technologies;
- Designing and implementing a pilot project in the city of Dnipropetrovsk to develop the Energy Service Company (ESCO) contracts market to improve EE of public buildings.

Important areas of policy dialogue and related TC have included reviews of emission trading, a Study on Adjusted Marginal Greenhouse Gas Abatement Cost Curves; Improving the EE of Residential building; Institutional support for policy dialogue and supporting implementing legislative and regulatory reforms for RE; Enabling environment for energy projects; Providing resources to ensure information dissemination and coordination between government, agencies and developers.

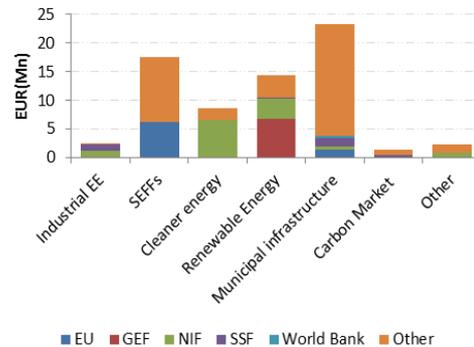
Up to 2016 (when data collection by EBRD stopped), most of EBRD's TC funding was directed to SEFFs, MEI EE, and RE, as shown in figures A7.9 and A7.10.

Figure A7.9: TC Funds: Outputs Over Time



Source: CI Database

Figure A7.10: TC Funds: Outputs and Source Funds



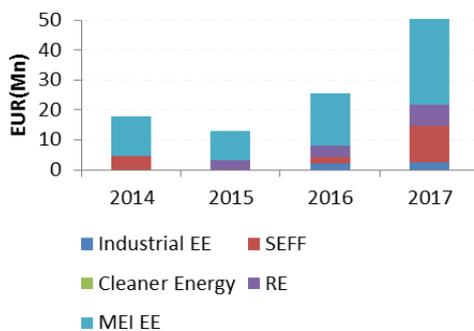
Source: CI Database

TC in Ukraine is funded by GEF, EU, and bilateral donors. Infrastructure and energy projects have benefited from grant co-financing and technical assistance from the EU Neighbourhood Investment Facility (NIF). In May 2009, the EU launched its Eastern Partnership (EaP), providing support to 6 neighbouring Eastern countries, including Ukraine.

### 6.3.1. Non TC Support

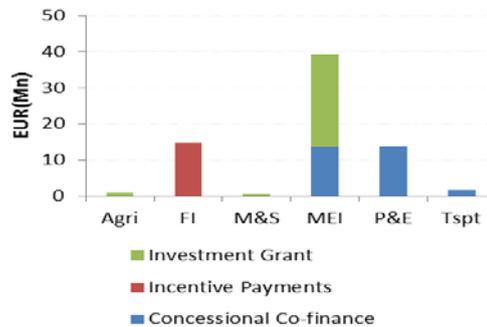
Over the period 2014-2017 Non TC finance with a total value of €70.8mn was allocated to 51 projects, with most of them being approved in the last 2 years. MEI EE projects accounted for most of the Non-TC, followed by SEFFs and RE. Almost 50% of the Non TC was structured as **investment grants** that were used by MEI for district heating, and wastewater biogas. **Incentive payments** of €14.7mn were linked to EE credit lines provided under the **Ukraine Residential Energy Efficiency Financing Facility (UREEFF)**, which was supported with €15mn in grant funding from E5P. **Concessional co-finance** of USD\$50mn was primarily used by the USELF to develop RE projects funded by Clean Technology Fund (CTF). The CIF provided concessional finance for a wind farm and district heating projects.

Figure A7.11: Non-TC: Outputs over Time



Source: CI Database

Figure A7.12: Non-TC: Type of Outputs by Department

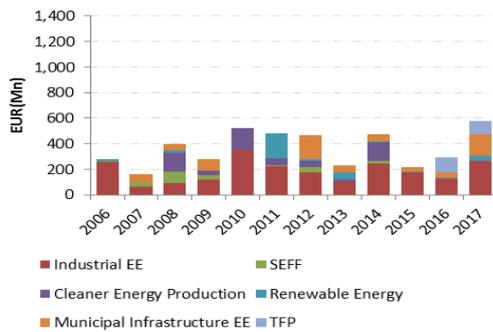


Source: CI Database

### 6.4. Financing

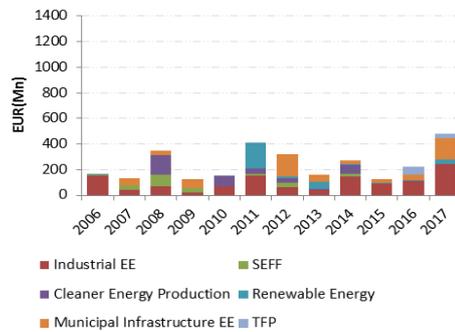
Lending operations have primarily focused on industrial EE and some municipal infrastructure EE projects. Lending volumes have been quite steady over time averaging about €250mn per year, and the average share of GET in Ukraine’s ABI amounted to 32% in 2006-2018.

Figure A7.13: GET Projects: ABI Outputs over Time



Source: CI Database

Figure A7.14: GET ABI Outputs over Time

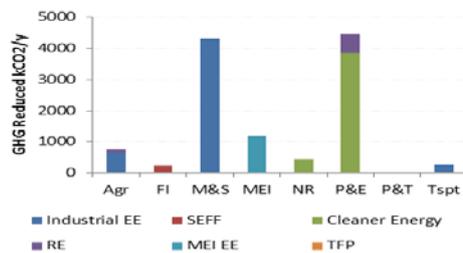


Source: CI Database

### 6.5. Project Outcomes

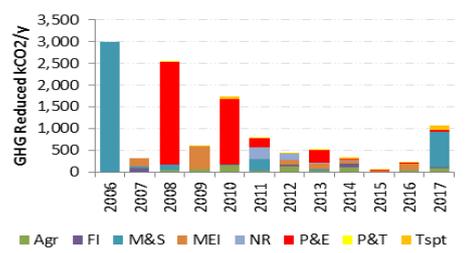
The main sources of GHG savings were Industrial EE projects implemented by Manufacturing and Services (M&S) and Cleaner Energy projects implemented by Power and Energy (P&E). The M&S projects were typically provided through direct loans and several Direct Financing Facilities (DFE) introduced in 2016 and 2017. The P&E GHG savings were generated through the cleaner energy Rivne Kyiv High Voltage Line Project approved in 2008 and the South Ukraine Transmission Project approved in 2010. P&E’s USELF facility started to generate some GHG savings from 2014 onwards, but they tended to be small.

Figure A7.15: GHG Reduced kCO2/y by Outputs and Department



Source: CI Database

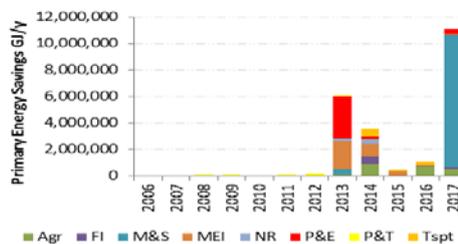
Figure A7.16: GHG Reduced kCO2/y by Department over Time



Source: CI Database

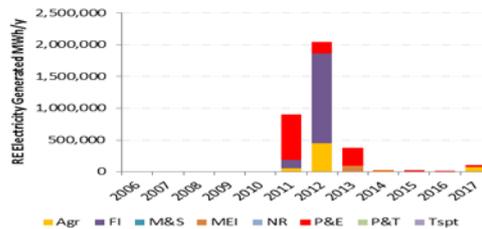
M&S was the most important source of energy savings, particularly in 2017 through the Arcelor Mittal Kryvyi Rih Industrial EE project. P&E generated some energy savings through the Ivankiv Biomass and Novoazovskiy Wind Projects approved in 2013. Financial Institutions was the main source of RE generation through the Ukreximbank SME EE Loan approved in 2012. The UREEF SEFF introduced in 2016 has not generated any reported RE generation gains.

Figure A7.17: Primary Energy Savings GJ/y by Department over Time



Source: CI Database

Figure A7.18: RE Electricity Generated MWh/y by Department over Time



Source: CI Database

Agribusiness has been the main source of water and material savings, primarily through its DFF for Agrofusion approved in 2017.

---

## Annex 8: Opportunities to Enhance Creditworthiness of CI Infrastructure Projects

### 1. Overview

One of the main findings from this evaluation is the low level of EBRD financing allocated to CI infrastructure, compared to energy efficiency (EE). EE received about 81% of Non TC funds and Annual Bank Investment (ABI), compared to 19% for Renewable Energy (RE), and there was virtually no investment in capacity for sustainable transport and water. It appears one of the main reasons for this low level of investment in RE has been the volatility of EBRD returns from its investments. **There are opportunities for EBRD to enhance the creditworthiness of its Sustainable Initiatives (CI) projects, particularly for infrastructure. EBRD can make greater use of local currency finance (LCY), and develop innovative financing structures to strengthen the enabling environment for infrastructure investments and financing. Concessional climate finance can potentially play an important role in the design and partial funding of these credit enhancement structures. These structures have the potential to increase project attractiveness to investors and third party commercial co-financiers of the projects**

EBRD makes extensive use of foreign currency (FCY) financing, and only 21% of its portfolio was denominated in local currency (LCY) in 2018. The CICI portfolio shows similar characteristics, with Power and Energy (P&E) making the greatest use of LCY at about 20% of its CI portfolio, and other departments using less. One of the main drivers of the use of foreign exchange (FX) has been lower interest rates on FCY, compared to LCY, but it comes at the cost of borrowers' exposure to large currency fluctuations, relative to the size of their liability. A recent study by the TCX Fund (in which EBRD is a shareholder and user of their FX hedging services), indicated that on average, 1-in-8 developing world currencies fall 20% or more against the dollar in any given year and 1-in-20 crash by 50%.

FX financing can create highly speculative risks for domestic firms, and in countries such as Ukraine the government has prevented EBRD from lending to small and medium enterprises (SMEs) in FCY for CI projects, due to their inability to manage these risks. It is apparent these risks can be equally severe for long term highly geared infrastructure projects that are reliant on LCY revenues. These risks have negative consequences for all parties involved, including the government as offtaker, and private investors and financiers as suppliers.CI

As part of the evaluation of the CI program, EVD reviewed EBRD's portfolio of RE financings in Egypt and Kazakhstan. RE has featured prominently in Egypt where it is primarily financed in FCY, and recently it has started to become important in Kazakhstan, where it is being financed in LCY. Following negative experiences with FX risks on infrastructure projects in 2015, Kazakhstan developed LCY tariff mechanisms to reduce the impacts of devaluations on the government. Under its current tariff structure for auctioned RE projects, the Kazakh government has introduced a tariff formula that penalises the use of FCY, relative to LCY.

In this appendix, the RE financing structures used in Egypt and Kazakhstan are evaluated using a financial model to gain an understanding of how the projects in these countries respond to FX risk, and more generally, manages credit risks, particularly on the demand side, where the government acts as the offtaker to these projects. The analysis confirms that financing infrastructure projects with tariffs denominated in FCY can create substantial risk for governments. Crucially, costs of project outputs to governments have the potential to more than double, even though the interest rates for

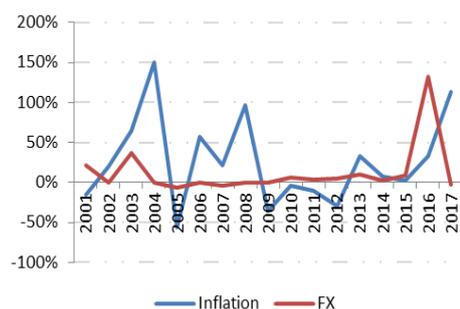
FCY loans are cheaper than LCY loans. It is clear the use of FCY introduces large financial risks into projects that could be reduced through the use of LCY. It is apparent the governments are in a weak position to manage these risks, and there are low levels of liquidity within the public sector to manage economic shocks when they occur.

The Bank should consider at the outset of such projects to work closely with the EBRD Treasury and other multilateral development bank (MDB) lenders to mobilise LCY finance and offer to the extent possible FCY/LCY hedging instruments. Initiatives to promote LCY should form part of a broader package of reforms designed to strengthen the government's ability to manage offtake risks using mechanisms such as offtake and early redemption funds that enhance the investment and financing environment. The reduction in these financial risks would have beneficial impacts for the governments procuring the project outputs, the project sponsors providing equity to catalyse projects, and it would reduce the credit risk for EBRD as lender to these projects.

## 2. FX Risk

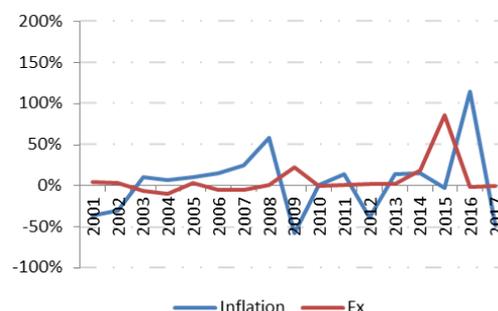
When analysing FX risks it is important to understand the drivers of currency movements. Governments have the choice of controlling either their exchange rate, or inflation, but they cannot control both variables simultaneously. FX rates are driven by factors such as the type of exchange rate regime (managed or floating), differential inflation rates between countries, and perceptions of country risk. **Figures A8.1 and A8.2** show the trends in LCY per United States Dollar (USD) and the inflation rates in Egypt and Kazakhstan for the period 2001-2017.

**Figure A8.1: Egypt**



Source: IMF Statistics

**Figure A8.2: Kazakhstan**

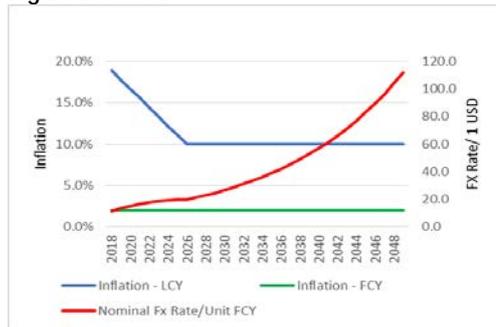


Source: IMF Statistics

**Figure A8.1** shows the Egyptian Pound (EGP) FX rate was stable from 2004 to 2016 as the currency was pegged to the USD, and it then devalued sharply after it was floated in response to political and economic conditions. Similarly, Kazakhstan (**Figure A8.2**) had a managed FX regime where the Tenge (KZT) was pegged to the USD and Russian Rouble until 2015, when it was floated following a sharp falls in world oil prices. There were large increases in inflation just prior to devaluations in both countries.

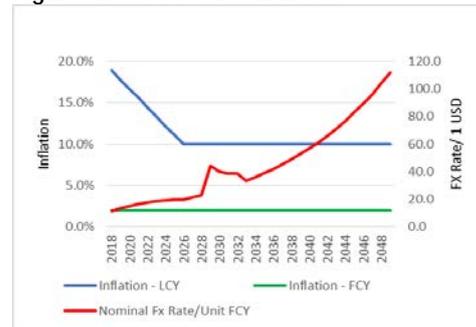
When modelling countries FX rates, it is common practice to assume purchasing power parity (PPP) holds and the FX rate adjusts to reflect differential changes in the inflation rates in each country. **Figure A8.3** shows how the LCY exchange rate per 1 USD changes under PPP based on the following assumptions: (i) LCY inflation starts at 20% pa, and then falls to a steady state inflation rate of 10% by year 10; (ii) FCY (USD) inflation rate is set at a steady state of 2% pa; and (iii) the initial FX rate is 10 LCY/ 1 USD. It can be seen that an FX rate of 10 LCY/1 USD increases to 112LCY/ 1 USD over a 30 year period, with a compound growth rate (CAGR) of 8.7% pa. If a negative economic shock is assumed to occur in the local market, then the rate of depreciation will be even greater, although CAGR remain the same. **Figure A8.4** shows the impact of an economic shock of 80% devaluation of the LCY, which takes 4 years to return to PPP.

Figure A8.3 PPP



Source: EVD

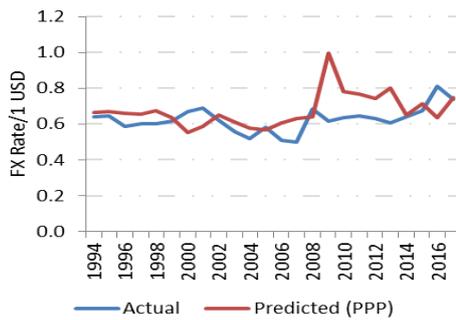
Figure A8.4: PPP + Devaluation



Source: EVD

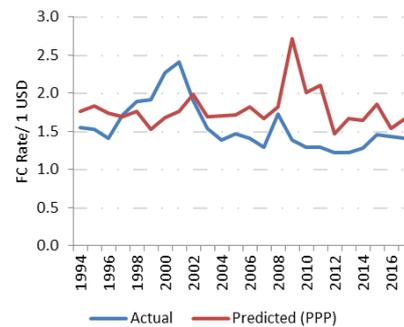
PPP is based on the concept of arbitrage, where prices of goods will equalize across countries in their respective FX rates. In practice, the concept of PPP holds quite well, although there are times when economic shocks occur, when it departs from PPP for various timeframes, depending on the magnitude of the shock. By way of example, Britain and New Zealand floated their currencies more than 20 years ago, and **Figures A8.4 and A8.5** show over the period 1994-2017 that LCY rates per USD have broadly reflected PPP. The main exception was the period following the global financial crisis in 2008, and it took 6-8 years for the FX rate to return to PPP equilibrium.

Figure A8.4: Britain



Source: IMF Statistics, and EVD Calculations

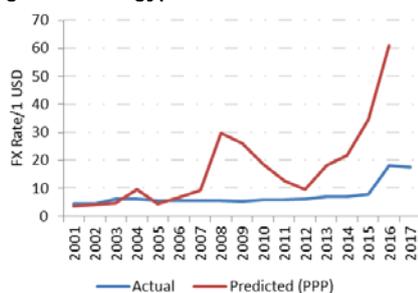
Figure A8.5: New Zealand



Source: IMF Statistics, and EVD Calculations

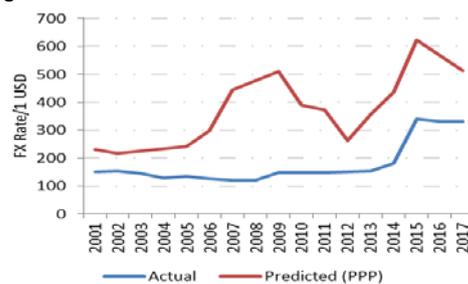
In comparison, it can be seen in **Figures A8.6 and A8.7** that during the same period the historical exchange rates for Egypt and Kazakhstan were substantially and consistently overvalued, relative to PPP, presumably due to these currencies being managed, independent of local inflation rates. Now that both countries have floated their currencies, it seems reasonable to assume they will return to PPP, although there will be extended periods when these currencies are under or overvalued due to risks of political or economic shocks.

Figure A8.6: Egypt



Source: IMF Statistics, and EVD Calculations

Figure A8.7: Kazakhstan



Source: IMF Statistics, and EVD Calculations

### 3. RE Program in Egypt

#### 3.1. Overview

FCY lending has featured prominently in EBRD's RE program in Egypt. In May 2017 the Board approved a RE Framework (REF) in Egypt to support the development of private RE power plants under Egypt's feed-in-tariff (FiT) programme, which relies on a tariff paid in LCY but partially indexed to the USD. The REF benefitted from support from Green Climate Fund (GCF), European Union (EU), and EBRD's Special Shareholder's Fund (SSF) to develop the enabling environment. The REF provided the framework for EBRD debt financing of up to USD500mn. The REF provided sub-loans of USD25-30mn to fund the construction of wind and solar generating plants of 20-50MW. Each subproject was expected to be financed on the basis of a 75:25 debt to equity ratio, with EBRD providing up to half the debt. The Board approved 16 loans in 2017 under the REF.

As the REF projects were all financed under the FiT scheme, they had similar financing structures. EVD selected one of the projects at random to gain a better understanding of the structure and how it responded to FX risk. The project board document assumed inflation of 19% in 2017, the first year the EPG was a free floating currency, and it would gradually decline to 7% by 2022, and remain constant thereafter. US inflation was set at 2% over the life of the project. The currency was forecast to appreciate from 18 EGP/1 USD in 2017 to 15.00 EGP/1 USD by 2021 and remain constant thereafter.

The tariff in the take or pay Power Purchase Agreement (PPA) was set in USD for a period of 25 years, but paid in LCY. **70% of the tariff is set at the applicable nominal USD exchange rate while the remaining 30% is converted by reference to the exchange rate as at September 2016.** Under the tariff formula, there was no inflation adjustment for the capital component, which accounts for most of the tariff. The US and Egyptian inflation rates were applied to foreign and local components of operating expenses. About 35-45% of operating expenses were denominated in USD and inflated at 2% pa, with the balance being denominated in EGP and inflated at the assumed local inflation rate. Due to the dominance of capital expenditure in the PPA the project revenues are largely insulated from changes in Egyptian inflation. ~~and~~ The 70% indexation provides substantial protection against any devaluation of the LCY FX rate. As efficiency of solar panels only deteriorates at 0.4% pa, and plant availability is assumed to be 99%, the tariff and revenue is almost flat in FCY terms over the project life. In comparison, the Earnings before Interest, Tax, Depreciation and Amortization (EBITDA) **margin peaks in the third year of operations at 87% and then gradually declines to 72% at the end of the project period, due to the impact of local inflation on operating costs, relative to a fixed revenue stream.**

EBRD provided 2 senior loans in USD, comprising a term loan for construction, and a smaller standby loan. The loans have a tenor of up to 18 years, with a 2 year grace period. The base USD LIBOR was 1.5% during construction, 2.0% in the first year of operation, and 3% thereafter. The total project costs were funded 75% by USD debt shared pro-rata among the 2 lenders and 25% equity, which was comprised of a combination of conventional equity (6.3% of project costs) and subordinated debt (18.8% of project costs). As a result, **93.7% of the project cost was financed by debt**, with senior debt accounting for 75% of project costs. Due to reasons of confidentiality there were no details in the board document on loan margins, and return on equity. Corporate tax rates were assumed to be very low over the project life, being about 10% of EBITDA, indicating some form of tax break had been provided to the project.

EVD used these assumptions in a model to gain a broad understanding of how the FX tariff mechanism and project debt servicing capability compared to project affordability to the government. **The model**

provides graphical representations of the FX rate, the profit and loss (P&L) statement, the balance sheet, and debt servicing capability for a project under a particular scenario. The 4 graphs in each scenario need to be reviewed in sequence to determine the main drivers of debt servicing ability (to EBRD) and affordability (to the offtaker and consumers). The model is necessarily a simplification, but it can provide an indication of how these parameters vary under different assumptions. The model is used to measure performance in FCY terms (ie from EBRD's credit perspective as lender) and in LCY terms (ie from the government's affordability perspective as buyer of the project outputs).

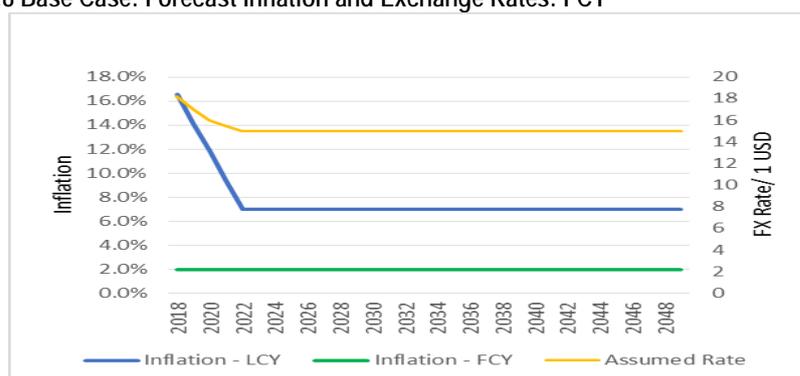
### 3.2. EBRD Perspective – Debt Servicing Capacity

The model is used to assess the base case presented in the board documents and a second scenario where exchange rate effects are reviewed to assess the impact on debt servicing ability and cost of the outputs (project revenue) to the government.

#### Base Case Scenario:

Figures are calculated based on the assumptions presented in the board documents that the FX rate would appreciate from 18.20 EGP/1 USD in 2017 to 15 EGP/1 USD by 2021 and remain constant thereafter. The FX rate assumed for the project is presented in **Figure A8.8**.

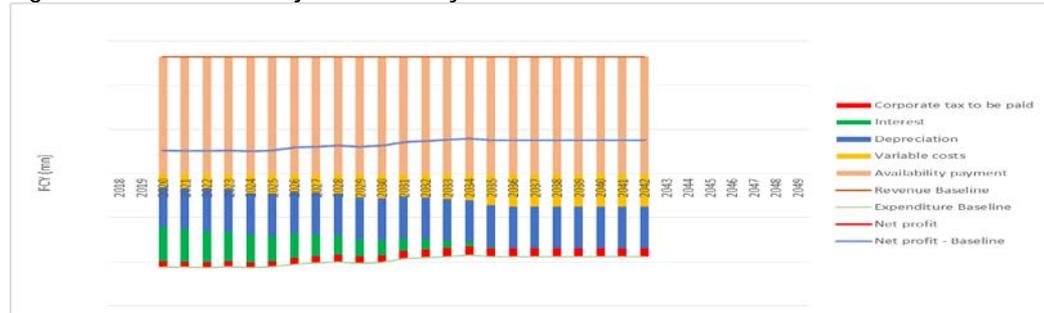
**Figure A8.8 Base Case: Forecast Inflation and Exchange Rates: FCY**



Source: EVD

The P&L Statement for the base case in FCY is presented in **Figure A8.9**. Operations commence after a 2 year construction period. In the P&L diagram, revenue is above the line, expenditure is below the line. The net profit – baseline is represented by the blue line, and it overlays the actual net profit line, coloured red. Based on the tariff formula, fixed offtake obligations, and almost constant capacity, annual revenue is effectively fixed in FCY terms over the life of the project, and it is capped by a brown baseline. Variable costs account for about 12% of revenues initially, gradually increasing to 28% by the end of the concession as EBITDA is compressed by the increase in local operating costs. The balance of the revenues is absorbed by depreciation, returns to debt (interest) and corporate taxes. Total expenditure is capped by the green baseline.

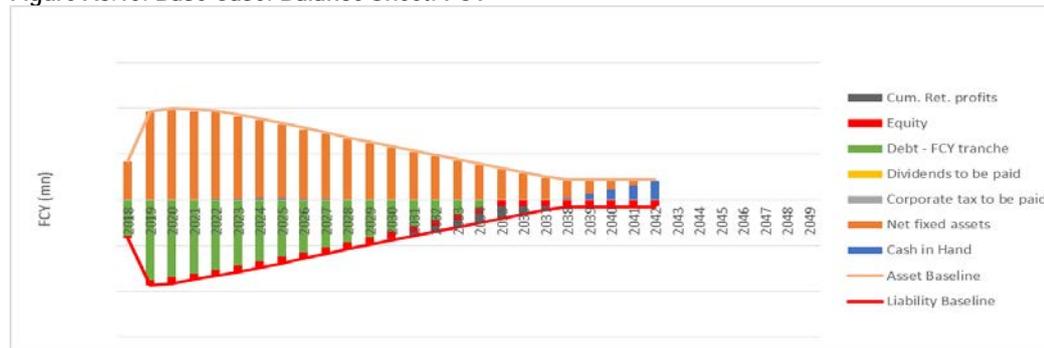
Figure A8.9 Base Case: Project Profitability: FCY



Source: EVD

Figure A8.10 illustrates the structure of the balance sheet over the life of the project in FCY, with assets (fixed assets and cash) being above the line, and liabilities (cumulative retained profits, equity, debt and corporate taxes to be paid) below the line. Fixed assets are valued at historical cost and are depreciated on a straight-line basis over the life of the project. The high level of gearing is shown by the small proportion of equity used in the financial structure. As the diagram is denominated in FCY, which is the currency of the debt, it amortises evenly over the life of the project. Total assets values are capped by a brown baseline and total liabilities capped by a red baseline.

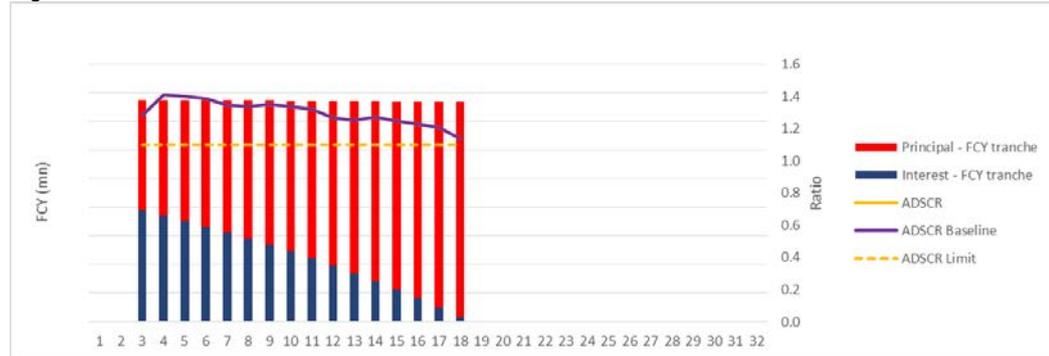
Figure A8.10: Base Case: Balance Sheet: FCY



Source: EVD

Figure A8.11 illustrates the project's ability to service the debt using cash flows from operations (based on the figures in the P&L in Figure A8.10) and the outstanding debt (based on the figures in the balance sheet in Figure A8.10). Figure A8.11 shows the principal repayments in red, and interest repayments in blue. The adjusted debt service coverage ratio (ADSCR) is calculated as the ratio of cash flows available for debt service, divided by debt service (principal plus interest). The baseline for ADSCR is presented in blue, and it overlays the actual ADSCR line which is yellow. The minimum ADSCR is represented by the minimum dotted yellow line. The ADSCR exceeds the assumed minimum rate of 1.1 over the life of the loan, although it gradually declines over time with the fall in operating margin due to the impact of local inflation that is not captured in the tariff.

Figure A8.11: Base Case: Debt Service: FCY

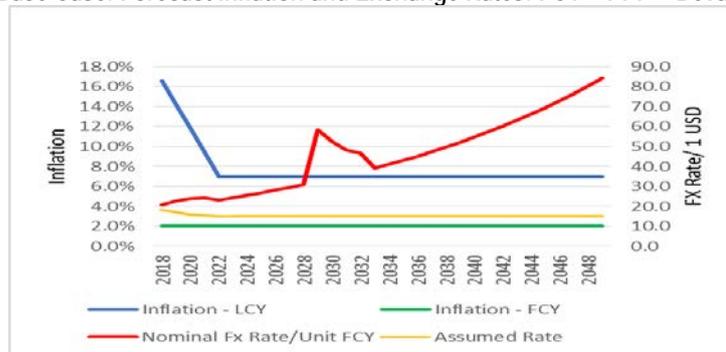


Source: EVD

Exchange Rate Impacts Scenario:

The same project is presented in Figure A8.12, but it is now assumed that PPP applies and there is an 80% shock to LCY, that causes the FX rate to depart from PPP from year 10 for 4 years. The new FX rate, based on PPP and devaluation, is shown by the red line, and it contrasts with the base case FX rate represented by the yellow line. Local inflation is represented by the blue line and US inflation by the green line, and they are the same as the base case.

Figure A8.12 Base Case: Forecast Inflation and Exchange Rates: FCY + PPP + Devaluation



Source: EVD

Superficially, the P&L in Figure A8.13 looks almost identical to Figure A8.9. However, closer inspection reveals that revenue, costs (including interest), and profitability, relative to their respective baselines, have all increased in magnitude:

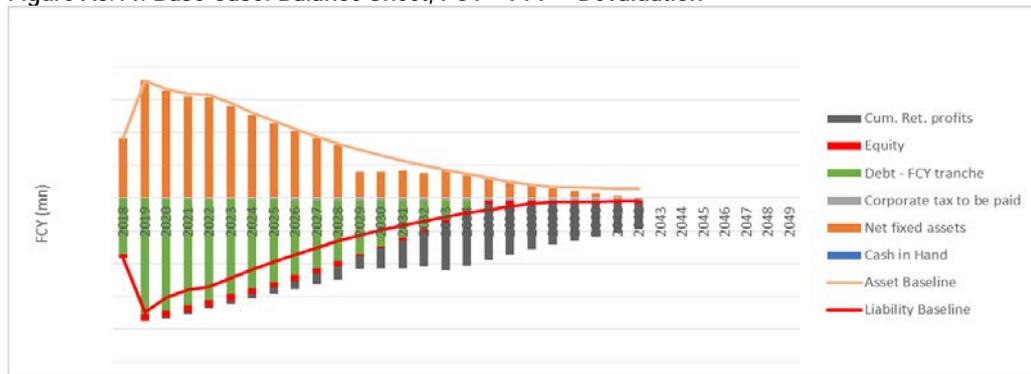
Figure A8.13 Base Case: Project Profitability, FCY + PPP + Devaluation



Source: EVD

Figure A8.14 shows the net asset values are negatively impacted by exchange rate effects, as costs are fixed at historic values reducing their value as a source of collateral to the lenders in FCY terms. At the same time, the magnitude of the debt is denominated in FCY and it increases in line with the growth in FCY. The non-cash FX losses associated with the growth in debt, relative to net fixed assets cause the company to become bankrupt by year 8.

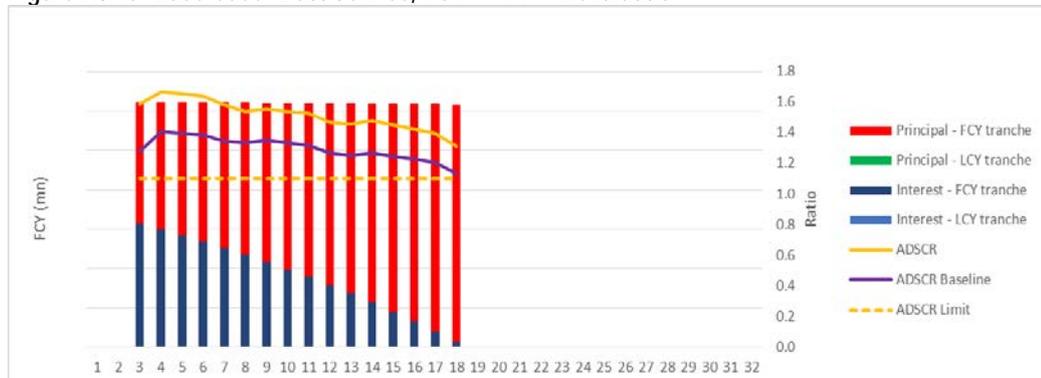
Figure A8.14: Base Case: Balance Sheet, FCY + PPP + Devaluation



Source: EVD

Despite the insolvency of the company, Figure A8.15 shows the cash flows and ADSCR of the company actually increases following the devaluation, relative to the base line, and comfortably exceeds the minimum ADCR of 1.1 over the term of the loan, although there continues to be a downward trend in the ADSCR over time.

Figure A8.15: Base Case: Debt Service, FCY + PPP + Devaluation



Source: EVD

An important caveat of this scenario is the EBITDA margins that are assumed, as the majority of operating costs are increasing at LCY inflation. As a result, if LCY inflation is higher for a longer period of time than expected, debt servicing capacity could easily be eroded sooner than expected.

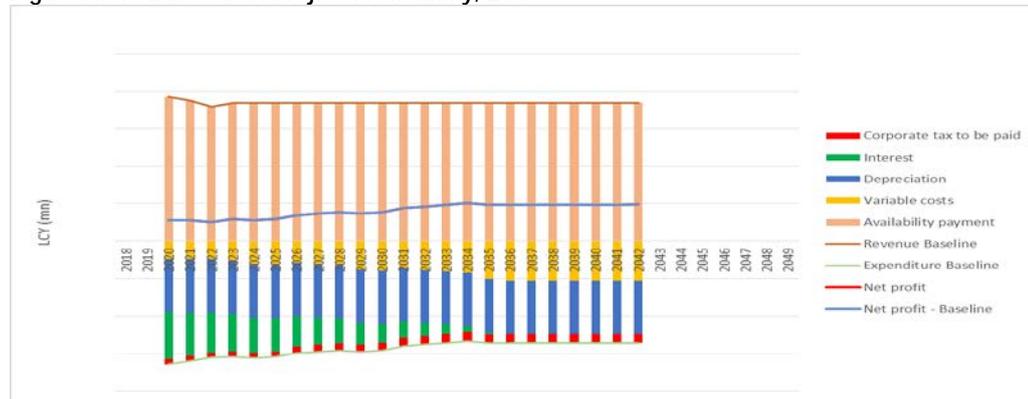
### 3.3. Government Perspective - Affordability

As the government is primarily interested in the cost of the outputs in LCY terms, the P&L statements are reviewed under a base case and exchange rates effects scenario to gain an understanding of how the revenue profile changes.

Base Case Scenario:

Figure A8.16 shows the base case FCY financing and FCY tariff from the government's perspective in LCY terms. As the original assumptions in the board document assumed no change in the exchange rate, outputs are level in the same way as the FCY scenario. Under this assumption there is no change in the real cost to the government of the payments energy payments.

Figure A8.16 Base Case: Project Profitability, LCY

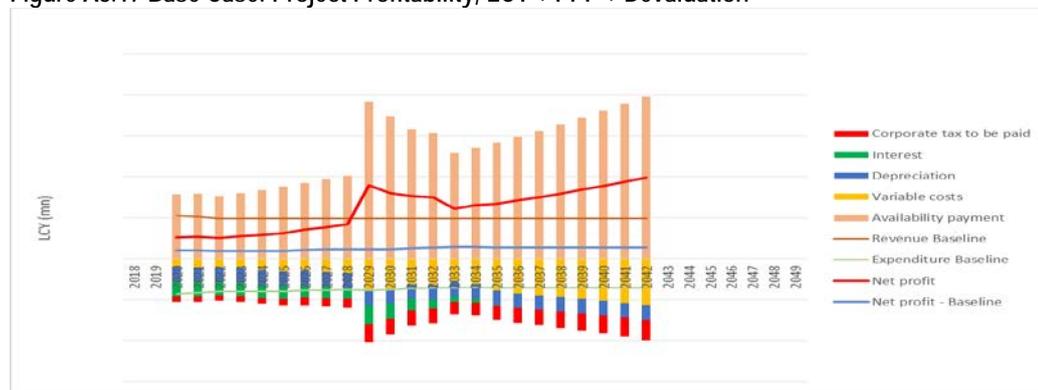


Source: EVD

Exchange Rate Impacts Scenario:

The exchange rate impacts scenario presents the base case results in LCY, plus the assumption that PPP holds, and there is a devaluation of the exchange rate of 80% in year 10, and it takes 4 years to return to PPP. Figure A8.17 shows the cost of the revenue streams to the government is substantially greater than the base case scenario.

Figure A8.17 Base Case: Project Profitability, LCY + PPP + Devaluation



Source: EVD

The net effect of the assumptions of PPP, and a depreciation of the LCY, is an increase in the cost to the government of the output payments from the original estimate in NPV terms of more than 100%. This increase in costs occurs at a time when the government's ability to service these additional costs is much weaker than under the base case scenario.

## 4. RE Program in Kazakhstan

### 4.1. Overview

The RE program in Kazakhstan is smaller than the program in Egypt. A regulatory framework was introduced in 2013 that was designed to promote the development of RE projects using a FiT. In November 2016 the Board approved the Kazakhstan Renewables Framework (KRF), which covered debt financing of up to EUR200mn, for 6-9 senior loans. The KRF was supported by EUR10mn of Technical Cooperation (TC) grants to prepare projects and support regulatory reform, development of the carbon market, and the introduction of an auction system to procure RE projects. Some of these projects are being developed using LCY financing, including the 50MW solar power plant at Baikonur and the M-KAT Solar Facility, which were both approved in 2018. These LCY projects were developed under the FiT, but there is an expectation future projects will be developed using the auction system.

Similar to Egypt, EVD selected one of the projects at random to gain a better understanding of the structure and how it responds to FX risk. The selected project's **PPA has a tenor of 15 years** and electricity is sold to the Financial Settlement Centre (FSC), which is a 100% subsidiary of the national transmission operator. The FSC is selling power to end users at levels below cost, and it is being financed with a levy on thermal generators. The amount of reserves at FSC's disposal is low, compared to its obligations, and the project was underwritten by a Project Support Agreement from the Ministry of Energy (MOE).

EBRD had the choice of financing the project with either LCY or FCY, and each currency had a different tariff formula. Following large currency devaluations in 2015, MOE introduced a partial indexation tariff mechanism in the FiT scheme for FCY financed projects where up to 30% of the tariff could be adjusted in a particular year by the change in the FX rate, rather than the local inflation rate, in the case of a devaluation of the KZT against the USD of more than 25%. Under the FiT scheme, the adjustment mechanism provided some protection to FCY lenders, whereas under the more recent auction FCY tariff formula, financiers are penalised in the event of currency devaluation. Under both schemes, revenues for LCY financing structures are 100% indexed to local inflation. EBRD decided to finance the project using LCY under the FiT scheme. EBRD forecast inflation would be 6.2% in 2018, and then decrease to 4% in 2025 and 3.5% by 2030. It was assumed the exchange rate would depreciate by 2.0% pa over the period 2018-2028, and then 2.6% pa from 2028-2-33. Capacity is almost constant, degrading at 0.5% pa and availability is 99.5% pa. Operating margins are almost static ranging from 84% in year 3 to 87% at year 9 and then gradually declining to 85% by year 17.

EBRD financing was provided under a floating interest rate in KZT, and FX risk associated with capital expenditure denominated in USD was mitigated by converting the initial disbursements into FCY. The EBRD loan was financed with proceeds of CPI linked LCY bonds issued to the State Pension Fund. EBRD managed the FX and interest rate risks consistent with the Financial Policies of the Bank. Leverage for the project was 75%, the tenor of the loan is up to 13 years and the grace period is up to 1.5 years. A corporate tax break was provided by the government for the term of the loan. The ADSCR was projected to be 1.2 for 13 out of the 14 years of the loan. There were no details provided in the board document on loan margins or expected return on investment.

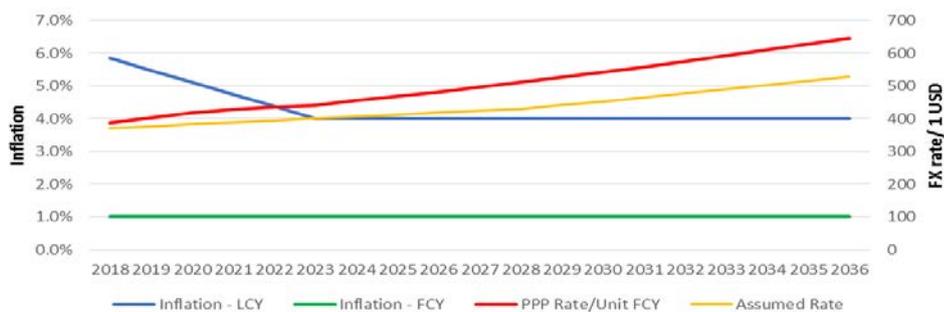
Similar to Egypt, the Kazakhstan RE Model is a simplification of the actual project.

## 4.2. EBRD Perspective – Debt Servicing Capacity

### Base Case Scenario:

As shown in **Figure A8.18**, the base case presented in the Board documents assumed a gradual increase in the FX rate, which was slightly lower than the PPP rate.

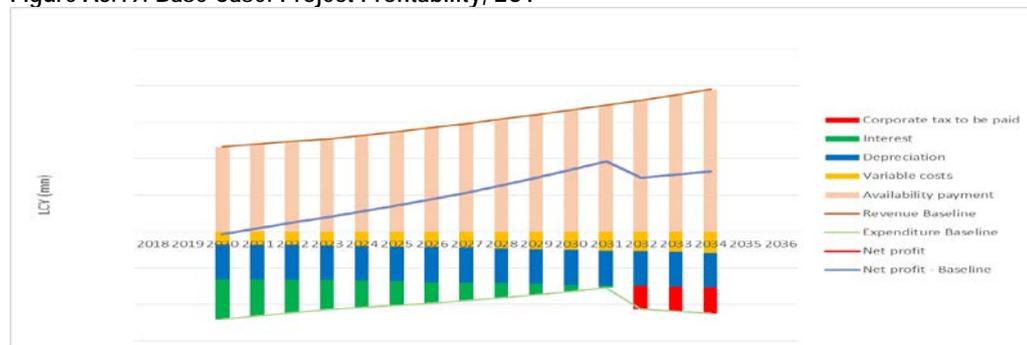
**Figure A8.18 Base Case: Forecast Inflation and Exchange Rates: FCY**



Source: EVD

The base case profitability of the project in LCY is presented in **Figure A8.19**. The take or pay revenue charges increase gradually in line with LCY inflation, and the interest cost steadily declines as the debt is amortised. Corporate tax starts to be paid after the debt is repaid, causing a slight dip in profitability in the last 3 years of the project.

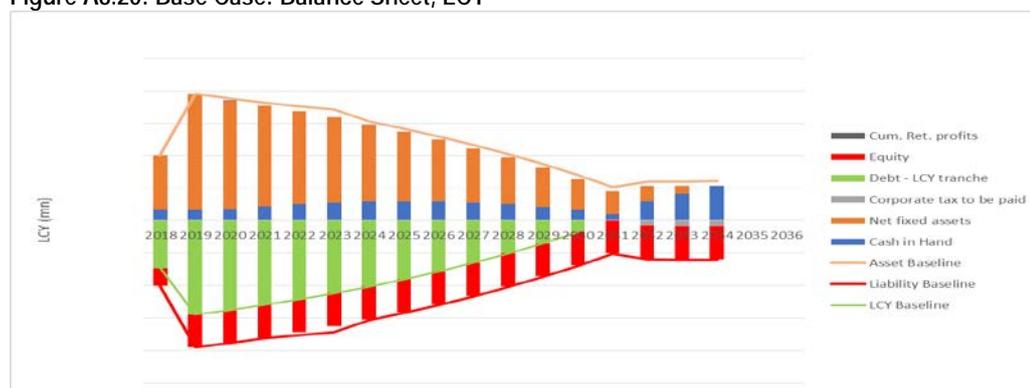
**Figure A8.19: Base Case: Project Profitability, LCY**



Source: EVD

**Figure A8.20** illustrates the behaviour of the balance sheet in LCY.

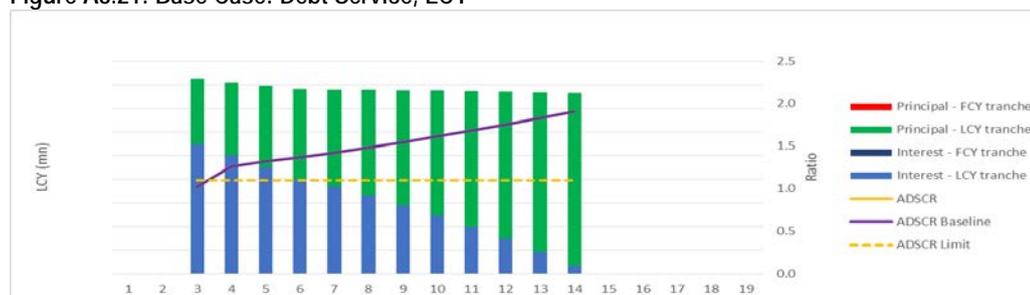
Figure A8.20: Base Case: Balance Sheet, LCY



Source: EVD

The ADSCR is presented in Figure A8.21 and it only just exceeds the minimum rate of 1.1 in the base case scenario, but strengthens thereafter. This result contrasts with Egypt FCY case, where the ADSCR deteriorates over the term of loan. This strengthening of the ADSCR over the life of the loan in the model also contrasts with the assumption in the board document for this project of a constant ratio of 1.2 over the life of the loan, which does not seem possible, based on the other assumptions in the board document.

Figure A8.21: Base Case: Debt Service, LCY



Source: EVD

**Exchange Rate Impacts Scenario:**

The assumptions presented in the Board document only slightly understated the FX rate if PPP held. As the project is financed in LCY, using an LCY tariff, FX movements have no impact on the debt service capacity of the project. The steady increase in the ADSCR indicates that from a credit perspective, the project is quite robust.

**4.3. Government Perspective - Affordability**

The P&L is not affected by changes in FCY, and costs of outputs in the base case, and when FX impacts are considered, are the same. Figure A8.19 above shows a steady increase in the cost of project revenues over time in line with inflation. There is no question that in nominal terms a tariff denominated in FCY, and financed in FCY, will have a lower cost to the government in both nominal and real terms than a tariff denominated in LCY, with LCY finance. In the case of Kazakhstan, this additional cost was relatively minor, due to the low rates of domestic inflation assumed for the project. As the tariff is not affected by FX movements, the project structure is much more robust from the government's perspective.

## 5. Implications of the Findings

**LCY financed projects, where project revenues are denominated in LCY are far more predictable to a government from an affordability perspective than projects financed with FCY.** While costs of outputs to the government will be higher in nominal terms, the difference in real terms is likely to be slight, particularly if LCY inflation is reasonably low. Based on this analysis, the main difficulty with LCY is the low ADSCR in the early years of the project, which may require an upward revision in the initial tariff, to meet lenders' minimum debt servicing requirements. In the Egypt project, EBRD provided standby funding to the project, and this type of instrument could potentially be used to help resolve debt servicing in the early stages of operations in a similar manner to a debt service reserve account, only on a larger scale, using subordinated debt. Alternatively, EBRD might want to shorten the tenors and refinance to make the most of available debt servicing capacity.

**LCY does not appear to create any critical issues for EBRD from a funding perspective in countries of operation that have some form of LCY market.** Where EBRD can hedge its LCY risks by issuing floating rate LCY bonds, using derivatives or other lines of credit, its capital employed is fully hedged and the projects are more robust from a debt servicing perspective. EBRD's competitive position is maintained, or enhanced as it may have the ability to issue long term AAA rated bonds to state owned sovereign wealth funds, pension funds, insurance companies, and banks, which are actively seeking long term LCY assets that can be matched against their LCY liabilities. Local banks may not have the same ability to issue long term paper due to capital adequacy restrictions and lower credit ratings.

**While a shift to LCY financing has the potential to offer significant benefits to both governments, EBRD and other MDBs, it is unlikely to be sufficient on its own to attract other private sector financiers.** It was apparent from the analysis the governments in both Egypt and Kazakhstan were offering tax breaks to improve the financial attractiveness of the projects, but they have little impact on project bankability and overall credit worthiness. In Kazakhstan, the government has established the FSC, but it is very small relative to the size of the obligations that it is underwriting. The FSC only has sufficient funds to cover a delay in offtake payments of 15 days, and there does not appear to be any provision for early termination payments. The absence of these funds is a concern as the sector is largely insolvent in both Egypt and Kazakhstan. The IEA found in 2017 that Egypt ranked fifth in the world for fossil fuel subsidies (almost 8% of GDP), and Kazakhstan ranked 16<sup>th</sup> (about 2% of GDP), indicating energy is being sold at a substantial discount to cost. As a result, the MOE in both of these countries is unlikely to have sufficient funds to meet obligations under instruments such as Project Support Agreements.

**There are a range of instruments that could potentially be used by the government to improve the credit standing of its project offtake arrangements,** such as a sovereign guarantee from Ministry of Finance, or political and partial credit guarantees from MDBs. The main difficulties with these instruments are their scarcity (in the case of MOF guarantees) and complexity (in the case of MDB guarantees), and the long delays between making a claim and receiving compensation so that the project company can continue operations. These delays can result in a lack of funds on the part of the government to make payments when needed.

**The problems with lack of liquidity on the government side could potentially be addressed by using concessional climate funds to design financing mechanisms coupled with commercial funds to ensure government funds such as the FSC are established on a secure financial footing,** and provide an environment that is genuinely attractive to private sector investors and financiers. For example, EBRD and commercial co-financiers could potentially provide a rolling annual LCY debt facility that is coupled with tax revenues generated by the project. These funds could be used to finance an

offtake fund that holds 6 months of revenues, compared to the current 15 days. Similarly, these funds could provide a fund with sufficient capital to pay out shareholders if an early termination event occurs, based on the NPV of outstanding expected earnings.

This structure is illustrated in **Figure A8.22**, and it could potentially be backed up by lenders' step in rights and an undertaking from the government to assume the project debt in the event of early termination in a similar manner to the Turkish Public Private Partnerships.

**Figure A8.22: Example of Funds to Manage Offtake and Early Termination Risk**



Source: EVD

There are many sources of operating funds that could potentially be used by the government to replace IFI funds over time including import duties, sales tax, corporate tax, land tax, project market revenues, land sales and rentals on property owned by the government associated with the projects. The net cost for the government of establishing such a facility would be the bank fees and the margin between borrowing and lending, which in most cases would be less than the cost of a tax break.

In conclusion, the use of concessional climate funds and LCY financing to develop and finance these types of structures has the potential to significantly strengthen infrastructure projects' ability to both minimise costs to the government and meet investor concerns and EBRD's bankability standards. However, to realise this potential, EBRD needs to take as much care designing project offtake and credit arrangements on the demand side, as designing the actual financing structures of the project on the supply side.

---

## Annex 9: Management Comments

### Executive Summary

- Management would like to thank EvD for this important Special Study on Climate Initiatives (CIs).
- The Study reflects significant work by both the Evaluation Department and by Management and staff active in this area. This has been driven by the broad scope of this report covering a sequence of initiatives over a long period of time.
- Management welcomes the overall finding of the evaluation which is that ‘the Bank has had considerable success amongst its MDB comparators and with respect to meeting financing targets’ and agrees that there is ‘both significant opportunity and pressing need to strengthen existing approaches and processes.’
- Overall Management agrees with the recommendations for further strengthening and enhancing the impact and contribution of the Bank’s initiatives to national and global climate change mitigation and adaptation objectives. These are also aligned with the ongoing Management work together with other MDBs, in particular, to clearly align objectives of climate related components of GET with the Paris Agreement, using selective programmatic approaches in line with low carbon pathways and taking account of NDCs.
- Within these enhanced objectives that will become more important over time in the Bank’s country strategies and operations, Management also: 1) agrees to further intensify private sector mobilization, including through funded and unfunded instruments to strengthen project risk profiles, fully recognising the key role of the private sector to achieve climate action at scale with the magnitude of investments required; 2) agrees to increase capacity to use LCY finance in line with its overall approach to Local Currency and Capital Market Development; and 3) agrees to strengthen the Management Information System recognising that improvements in ex-post monitoring and verification capacity would require significant additional resources and budget.
- Management also agrees to further strengthen institutional arrangements for concessional climate funds. However, Management believes that the suggestion to shift responsibility for climate fund management is not warranted to achieve the intended goal. Strengthening institutional arrangements should not focus on any individual team but continue to rely on the current cross-matrix approach.
- Management notes that the study findings about past performance and effectiveness do not accurately reflect the achievements of the Bank under past climate initiatives in line with its objectives and metrics of results in scaling-up green finance and delivering positive climate mitigation and adaptation impact in anticipation of, and in response to, the evolving global climate finance challenges and climate change agenda.
- Management is of the opinion that the assessment should be done relative to the objectives and results metrics set at the time instead of using only GHG emissions reduction to assess effectiveness of activities and allocation of concessional finance or resource allocation to assess the extent and role of policy engagement. Objectives/performance metrics of the Bank’s initiatives were related to the scaling-up of green financing volume, the mainstreaming of sustainability objectives into the Bank’s operations, donor funds mobilisation, the build-up of policy dialogue and collaboration with other MDBs. Bank initiatives also clearly articulated intentions to seek to magnify the demonstration effect of projects and use project-focused approach, leveraging individual projects to achieve broader transformation towards a low-carbon economy. The maximisation of GHG emissions reduction outcomes of investments and TC/Non-TC was not directly targeted by the past initiatives; neither has the Bank committed to the tracking of ex-post physical outcomes.

Management provided extensive comments to the draft study and some important points have already been reflected by EvD in the final version of the study.

Management comments to the recommendations and key findings of the study are presented below:

### Management Comments on Recommendations

**Recommendation 1:** *Strengthen and clarify the broader strategic context and objectives of the climate related components of GET. The objective should be clear alignment with the Paris Agreement, using selective programmatic approaches in line with low carbon pathways and taking account of NDCs.*

Management agrees with this recommendation. Reflecting the increased evidence of climate change impacts and urgency to address mitigation and adaptation at scale, alignment with the Paris Agreement is expected to become an increased factor in the strategy and operations of MDBs. As a result, the role of low carbon pathways will emerge as a core implementation tool for this alignment addressing a number of issues and comments raised in the Report. The link to NDCs, which was not a consideration at the time of launching GET as it was approved before the Paris Agreement, will become more important over time in the Bank's country strategies and work has already started on NDC capacity building, supported by a targeted TC programme.

**Recommendation 2:** *Intensify Private Mobilization - Strengthen creditworthiness of project designs to private partners by strengthening the focus on project designs that derive acceptable risk return profiles for private sector financiers by making innovative use of unfunded and funded instruments to strengthen project risk profiles and target mobilization in total, rather than ABI.*

Management agrees that the private sector is essential to achieve climate action at scale with the magnitude of investments required and that further attention needs to be given to enhance mobilisation. It should be noted that a fundamental element of mobilisation of the private sector is first and foremost to work with the private sector. It is relevant to note in this context that over the period 2014 to 2018, 61% of EBRD climate finance was in the private sector.

Furthermore, Management acknowledges that concessional finance and structured finance instruments can indeed play a role in strengthening the private finance mobilisation of projects. The EU in particular has a number of emerging risk instruments for this purpose. Management agrees to pursue the use of funded and unfunded instruments in cases when these can contribute to strengthening project risk profiles and targeting mobilisation. The structure of these instruments, as always, will be in line with the Bank's guidelines on the use of concessionality and the underlying structure will reflect specific market and project-specific conditions.

**Recommendation 3:** *Strengthen Institutional Arrangements for Concessional Climate Funds. Provide E2C2 with a mandate to manage the portfolio of concessional climate funds, with an overarching objective to mitigate climate change effects by reducing GHG emissions in its COOs and reducing vulnerability to CC; maximize potential for private co-finance to achieve this objective; and regularly report to the Board on the achievement of physical climate change objectives.*

Overall, Management agrees with the recommendation to strengthen institutional arrangements for concessional climate funds. However, Management believes that the suggestion to shift responsibility for climate fund management is not warranted and will not achieve the intended goal. Strengthening

institutional arrangements should not focus on any individual team but continue to rely on the current cross-matrix approach which remains broadly valid.

Institutional strengthening can be achieved within the existing division of labour (which has enabled the Bank to “compete effectively for the external/concessional resources critical for CI delivery,” as acknowledged in the Report) whereby pipeline development and structuring is driven by Banking teams and E2C2, fundraising and packaging of investments for donor consideration by E2C2, DCF and Banking, and fund management, administration and reporting by DCF.

EBRD mobilises resources via well-established calls for proposals, which have been established by donors for a range of development partners. In this process, EBRD and the donor agree ex-ante on reaching programme/project specific outcomes and targets, by measuring tailor-made indicators. Recommendation 3 incorrectly assumes that EBRD can pool concessional funding from a variety of donors and allocate it at its own discretion, based on internally defined metrics.

Moreover, Management does not believe that the proposal contained in the Report would be welcomed by donors who expect an arm’s length relationship to exist between the manager of funds and the users of funds in the Bank who may at times have different priorities, objectives and policies in terms of the provision of grant funding.

Management agrees, however, that the approach, guidelines and procedures for the assessment, allocation and prioritisation of funds based on a common set of climate change mitigation and adaptation objectives could be reviewed. In this context, Management is currently undertaking a Bank-wide, full-scale internal review to assess the best ways of managing its donor relations and funds.

The detailed and ambitious recommendations in section 4.2 are in line with the current work on Paris Agreement alignment and related country planning and low carbon pathways considerations. As part of this approach, E2C2 will continue to work across the matrix organisation to support the Bank to pursue the ‘overarching objective’ regarding climate change mentioned in the EvD report.

At the same time, Management believes that the allocation of climate finance and investment should not be driven by the objective of maximising GHG emissions savings per unit of investment. There are many investments that will not maximise GHG emissions but are essential to the low-carbon transition, e.g. energy efficiency in buildings, SMEs, as well as the upgrade of municipal and transport infrastructure. Furthermore, an excessive focus on maximising GHG emissions reduction would not be consistent with the rising importance of climate change adaptation.

**Recommendation 4:** *Increase capacity to use LCY finance – direct resources to Treasury to improve foreign access to local capital markets; country strategies should assess EBRD’s ability to provide LCY finance and the main constraints; LCY should feature specifically in country strategies and Bank Scorecards.*

Management agrees on the importance of minimising currency mismatch risks and the increasing capacity to use LCY finance. Management believes that while this is especially relevant for “Green” projects, as these typically support clients with local currency income (renewable energy, water, waste, transportation), it is an issue that goes beyond CIs. Management considers, however, that much more than increasing treasury resources is needed to improve foreign access to local capital markets. This includes assessing the existing regulatory environment and EBRD’s ability to provide LCY finance and develop sustainable green instruments at the domestic level, such as Green Bonds, as well as identifying constraints and helping create jurisdictions and regulation that are supportive of climate initiatives. This is

---

in line with the Bank's overall approach to Local Currency and Capital Market Development that was covered in the EvD recent study on local capital market development and the management follow-up to that study.

Management notes that the level of activities in local currency (and capital market) development is already in the institution scorecard, as part of the indicators under the Composite Performance Assessment of "Resilient" transition quality, as well as teams scorecards.

**Recommendation 5:** *Strengthen Management Information System – The Technical Cooperation Reporting System (TCRS) or some equivalent urgently needs to be made operational to capture project level TC data. CI databases need to be integrated and ex ante and ex post data collected at the country and project level on variables such as COO vulnerability and carbon budgets, baselines and targets for net and gross emissions, expected lifetime emissions savings, scoring for improvements in resilience, sources of co-finance, and unit costs of outputs and outcomes.*

Management agrees with the need for a strong management information system for capturing project level data given the weaknesses with current systems. Management believes that it is important to improve the Bank's data management and data systems across the board, in a consistent manner and for all areas. Work is underway to strengthen the TCRS system, while awaiting more far-reaching changes related to the introduction of the new IT data system that is being developed (Monarch). The capabilities to collect, integrate and analyse project- and country-level data beyond the current practice will need to be assessed and a business case for additional MIS investments will need to be made. The work on MIS will need to be linked with the work on the development of the methodologies for Paris Alignment.

Management also agrees that it is important to collect the necessary ex-ante and ex-post data but emphasises that improvements in ex-post monitoring and verifications capacity would require significant additional resources and budget (a precise monitoring and tracking of actual GHG emissions reductions can require in certain cases expensive studies, for example in the case of public transport investments).

Finally, it must be noted that at present the quality of data made available at national level is poor and significant gaps exist although it is expected to improve over time as national capacity and systems to collect and monitor data relevant to climate, energy and environmental data improve.

**Recommendation 6:** *Management should submit a report to the Board within no more than 12 months providing a detailed discussion of implementation of these recommendations, including explicitly identifying resources, responsibilities and timelines.*

Management takes note of this recommendation and will update the Board in the context of the strategic developments in the climate and environmental activity of the Bank being considered for the next SCF period and taking into account and/or responding to the recommendations set out in the EVD report.

---

## Management Comments on key findings

### 1. Evolution and Focus of Initiatives

Management notes that EvD has introduced the term Climate Initiatives ("CI") as an umbrella covering the full sequence of initiatives in the environmental operations area. This is a broad scope which contrasts with the narrow focus placed in the assessment on GHG savings. This leads to a judgment that environmentally-relevant activities with limited or no direct impact on GHG reduction dilute the Bank's focus.

The point here is that initiatives have changed to address an evolving agenda driven both by shareholders (for example increased attention to climate change adaptation), by its countries of operations (for example energy security and economic competitiveness), and by its private sector clients (for example resource efficiency). Each strategic development stage clearly defined a precise set of priority interventions reflecting both their relevance in terms of addressing the issues faced by COOs on green economy and the comparative advantage of the Bank. These priorities set out in the Bank's strategies are relevant to a broader environmental agenda than a single focus on GHG emissions reduction.

### 2. Objectives and Incentives: Annual Business Investment (ABI) vs. GHG emission reduction

The study concludes that the financing target creates incentives for / contributes to resource allocation to drive EBRD lending rather than maximising GHG emissions reduction. Management notes that from the start in 2006, SEI responded to the request of shareholders to scale-up EBRD climate finance contributing to closing the funding gap for climate change mitigation and adaptation. The focus on climate finance targets was further intensified following the Copenhagen COP with the formulation of the \$100 billion climate finance goal set for 2020. Within this frame, the MDBs have been under an increasing pressure to contribute to the fulfilment of this goal. The focus on financing targets is therefore entirely in line with the context within which the sequence of climate-relevant initiatives was developed and the EvD report acknowledges that the Bank has been very successful in reaching these financing objectives.

While maximisation of GHG emissions savings / minimisation of GHG emissions have accordingly not been the core goal, individual investments need to meet required standard and energy/GHG emissions saving thresholds (and other applicable eligibility criteria) to be counted as climate finance. Furthermore, as mentioned above, Management acknowledges the recommendation that the objectives and results framework may need to be revisited in the future to further enhance the impact and contribution of the Bank's initiatives to national and global climate change mitigation and adaptation objectives. Recommendation 1 highlights this point while an ex-post monitoring system will be an important factor to optimise impact.

### 3. Performance and Effectiveness

Management welcomes the findings that climate finance targets were met consistently. It is noted that the study concludes that apart from ABI targets "elsewhere results are mixed" and that the positive results related to ABI "exist alongside some areas of concern and underperformance" related to declining GHG savings outcomes, misaligned incentives, the lack of ex-post monitoring and a coherent basis for allocating resources to areas where effectiveness and impact are likely to be greatest.

Management notes these conclusions and agrees that these areas of concern should be considered with a view of enhancing the positive impact of Bank's initiatives going forward. However, Management is of the opinion that the assessment should be done relative to the objectives set at the time. The maximisation of GHG emissions reductions outcomes of investments and TC/Non-TC was not among Board-approved targets/metrics of the past initiatives; neither has the Bank committed to the tracking of ex-post physical outcomes.

Objectives/performance metrics of the Bank's initiatives were related to the scale-up of green financing volume, the mainstreaming of sustainability objectives into the Bank's operations, donor funds mobilisation, the build-up of policy dialogue and collaboration with other MDBs. Bank initiatives also clearly articulated intentions to seek to magnify the demonstration effect of projects and use project-focused approach, leveraging individual projects to achieve broader transformation towards a low-carbon economy. Each of the initiatives has also set-out intentions to innovate and develop new products, approaches and areas of focus. It is Management's opinion that the Bank has been highly successful in developing an effective business model (combining Bank's funding with TC and capacity building, policy dialogue and selective concessional funding) and delivering against these objectives/performance metrics, while the evaluation did not make a judgement beyond assessing the achievement of respective ABI targets and physical impact.

#### 4. Concessional Funds / TC

Firstly, Management notes the heavy focus of the study on the issues of concessional finance and would like to emphasise that the majority of GET operations do not require support in the form of investment grants or concessional finance (the total value of Non-TC was 5% of GET ABI in 2016 and 3% in 2017 as noted in the Study). The Bank's competence and comparative advantage are particularly strong in the private sector, with very limited non-TC requirements compared to the public sector.

Secondly, the study uses GHG emission reduction/EUR of investments metric to assess the effectiveness and guide the allocation of TC/Non-TC. The study also states that concessional funds are being allocated on the basis of lending volumes. Management notes that in allocating grant funding the Bank is guided by internal policies on the use of subsidies, which should be targeted at addressing market barriers and failures. While having a relatively smaller GHG reduction potential, SMEs and small projects face relatively higher barriers to investment due to the inherent lack of capacity and expertise, higher risks and transaction costs; barriers to investments in challenging areas such as public infrastructure and buildings are also significant.

In contrast, industrial energy efficiency projects can generally be financed without any grant incentives. Accordingly, the low share of concessional finance to industry reflects the fact that in most cases there should be no subsidies for this finance. It does not reflect as the study asserts a misallocation based on differential GHG emissions reduction potential.

Based on the above, Management believes that the Bank has been applying TC/Non-TC across various areas and sectors in an effective manner. Management does agree with the EvD's assessment regarding the importance of renewables (as demonstrated by projects supported in Jordan, Egypt, Kazakhstan), and the Bank will continue to seek ways to use targeted support to alleviate specific barriers and underpin the development of the sector further.

## 5. Policy

The Study states that the Bank is not allocating sufficient attention towards “upstream” policy work, particularly to support the preparation of national climate change mitigation and adaptation commitments and strategies.

This finding is based on a comparison of the share of TC allocated to policy work relative to project preparation (see section 3.6.1 (iv)). Management considers that this is not a relevant basis for assessment considering the significant difference in average cost between policy and project preparation work.

Management does agree that the Bank needs to work on systemic “upstream” policy activities and believes that it has been doing this consistently since the end of SEI Phase 1. It is relevant to note in this context that the first policy staff hired within the Banking Department was in the E2C2 team as far back as 2008. Since then, the Bank has developed an active and diversified climate policy work programme. In the period from 2009 to 2017, the Bank completed over 330 policy activities including national energy efficiency and renewable energy action plans, renewable energy laws, energy performance standards for appliances and legislation for public sector energy performance contracting.

While the Bank’s climate initiatives and project-based operational approach have not been linked to national climate strategies as they have either not existed or been at a nascent stage of development, the Bank has pursued policy engagement that has been successful in removing barriers, setting standards, opening markets and catalysing private sector action. The strengthening of NDCs and alignment to the Paris Agreement will provide a stronger base for alignment between Bank activity and country climate priorities.

## 6. International Climate Action

Management would like to highlight that the Bank has actively contributed over the period covered by the CI evaluation to the international work to address the climate change debate by participating in a broad range of fora including, for example, the G20, the One Planet Summit, UN Climate Summits, the EU High Level Expert Group on Sustainable Finance, the Network for Greening the Financial System (observer in the NGFS which currently includes 34 central banks), the NDC Partnership and the MDB Working Group on Paris Alignment. The Bank’s contribution is particularly appreciated in relation to its expertise related to private climate finance, energy efficiency, renewable energy, cities climate finance and the integration of policy work and investment.

Over the course of time, this work has allowed the Bank to contribute in a practical manner to international climate policy and finance development, while staying at the forefront of the climate agenda and of MDB best practices on climate action (including in terms of relevant internal procedures and guidelines related to climate finance accounting, monitoring and reporting).

## 7. Data

The report states that large and problematic data gaps exist, particularly on concessional funding. Management acknowledges that significant data gaps exist and both systems for and approaches to data collection, monitoring and reporting need to be improved. As reflected in relation to Recommendation 5, Management agrees on the value of ex-post data highlighting the additional costs which will have to be incurred.

At the same time, it must be noted that the Bank's current procedures and systems only collect and integrate data that the Bank is required to monitor internally (based on approved strategies, guidelines, performance metrics) and disclose externally (reporting to donors, disclosures in the Annual Environmental Report and Joint MDB Report, etc.). Data availability/collection, as well as monitoring and reporting practices have been in line with respective commitments and obligations vis-à-vis EBRD donors.

Equally, the Bank's practices for the accounting, monitoring and reporting of climate finance and associated physical impacts have been conforming to MDB guidelines – which are primarily based on ex-ante estimates – as well as other applicable standards (including Green Bond Principles in respect of the portfolio financed by the Bank's Environmental Sustainability Bond Programme). The Bank regularly monitors the use of financing proceeds ensuring that green projects are implemented; as well as tracks projects' performance against the underlying Transition Impact benchmarks (such as expected GHG emissions savings and other physical impact indicators as applicable). Finally, the Bank has already started strengthening its MRV unit and approach, going beyond the requirements of the adopted MRV procedures. For example, since 2016 the Bank has been validating GHG emissions from a sample of CI projects with the highest CO2 emissions and/or emission reduction potential.

## Endnotes

- 
- <sup>i</sup> Economics of Climate Change, L Goulder, W Pizer, 2006
- <sup>ii</sup> Exceeding Expectations in Katowice, UNDP, December 2018.
- <sup>iii</sup> Investing in Climate, Investing in Growth, OECD, 2017
- <sup>iv</sup> Global Warming of 1.5°C, IPCC, 2018
- <sup>v</sup> World Energy Outlook, 2017, IEA
- <sup>vi</sup> IEA (2017), Chapters 1 and 2 in Perspectives for the Energy Transition: Investment Needs for a Low-Carbon Energy System, International Energy Agency/OECD Publishing, Paris, [www.energiewende2017.com/wp-content/uploads/2017/03/Perspectives-for-the-Energy-Transition\\_WEB.pdf](http://www.energiewende2017.com/wp-content/uploads/2017/03/Perspectives-for-the-Energy-Transition_WEB.pdf).
- <sup>vii</sup> See **Annex 2** for further details on these facilities.
- <sup>viii</sup> Climate Finance in 2013-14 and the USD 100 Billion Goal: A report by the OECD in collaboration with Climate Policy Initiative, OECD 2015, <http://dx.doi.org/10.1787/9789264249424-en>.
- <sup>ix</sup> INSIDER: An Enhanced and Effective Framework for Transparency and Accountability in the Paris Agreement, Dagnet and Waskow 2015
- <sup>x</sup> DFI Working Group on Blended Concessional Finance for Private Sector Projects Summary Report, October 2017
- <sup>xi</sup> CAS = Central Asia; CEB = Central Europe & Baltics; EEC = East. Europe & Caucasus; SEE = South East. Europe; SEMED = Southern & Eastern Mediterranean
- <sup>xii</sup> Global Trends of Material Use at a Glance, [www.materialflows.net](http://www.materialflows.net)
- <sup>xiii</sup> The MCCF is a joint initiative between EBRD and EIB where private and public companies as well as EBRD and EIB shareholder countries can purchase carbon credits from emission reduction projects financed by EIB or EBRD to meet their mandatory or voluntary GHG emission reduction targets
- <sup>xiv</sup> Mobilization of Private Finance by Multilateral Development Banks and Development Finance Institutions, 2017
- <sup>xv</sup> Estimates on the amount contributed by GCF vary, depending on the document referenced
- <sup>xvi</sup> Transition Concept Review, BDS16-181, 5 October 2016
- <sup>xvii</sup> The GET physical indicators use a ratio scale of measurement, whereas most transition indicators use an ordinal scale, and can only be ranked, rather than used as a basis for measurement of changes.
- <sup>xviii</sup> Making the Global Financial System Work for All, October 2018
- <sup>xix</sup> OECD DAC Blended Finance Principles, 2017
- <sup>xx</sup> [https://www.ifc.org/wps/wcm/connect/Topics\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/Impact-investing/Principles/Beyond the Gap](https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Impact-investing/Principles/Beyond_the_Gap), World Bank, 2019.
- <sup>xxi</sup> IMF statistics
- <sup>xxii</sup> Financial Times, January 2019
- <sup>xxiii</sup> Report of the G20 Eminent Persons Group on Global Financial Governance, 2018
- <sup>xxiv</sup> This annex is based on material drawn from: "CO2 emissions from Fuel Combustion", IEA, 2017
- <sup>xxv</sup> Non-Annex I countries are developing countries under the Kyoto Protocol. Non-Annex I countries do not have legally binding emissions reductions targets, although most countries have now agreed to voluntary National Determined Contributions (NDCs) under the Paris Agreement 2015.
- <sup>xxvii</sup> <https://www.ebrd.com/downloads/news/mdb.pdf>
- <sup>xxviii</sup> Climate Finance; Is it Making a Difference? ODI, 2014
- <sup>xxix</sup> Financing the Energy Transition: Are World Bank, IFC and ADB Energy Supply Investments Supporting a Low Carbon Future? WRI, 2017
- <sup>xxx</sup> <https://intranet.ebrd.com/climate-resilience-knowledge-hub->
- <sup>xxxi</sup> <https://intranet.ebrd.com/climate-resilience-knowledge-hub->
- <sup>xxxii</sup> <https://intranet.ebrd.com/climate-resilience-knowledge-hub->