



# Germany's carbon market cooperation with Ukraine: Prospects for engaging with Article 6 of the Paris Agreement

## Editorial information

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# Content

<b>Project Background</b> .....	<b>5</b>
<b>Acknowledgement</b> .....	<b>6</b>
<b>Abstract</b> .....	<b>7</b>
<b>Kurzbeschreibung</b> .....	<b>7</b>
<b>1 Introduction</b> .....	<b>9</b>
<b>2 Setting the scene: carbon markets in Ukraine</b> .....	<b>12</b>
2.1 Glance into the past: International carbon market activities .....	12
2.2 Domestic carbon market activities .....	15
2.2.1 Partnership for Market Readiness .....	15
2.2.2 Association Agreement with the European Union .....	16
2.3 Glance into the future: Ukraine's first NDC under Paris Agreement .....	16
<b>3 Country position and capabilities</b> .....	<b>17</b>
3.1 Interest in using international markets and positioning in the usage of Article 6 .....	17
3.2 Classification of carbon market related country capabilities .....	18
3.2.1 Domestic accounting capacity .....	18
3.2.2 Domestic MRV capacity .....	18
3.2.3 Domestic administrative and regulatory capacity .....	19
3.2.4 Actual mitigation capacity .....	21
<b>4 Assessment framework for countries' readiness to engage with Article 6</b> .....	<b>23</b>
4.1 Participation options under Article 6 .....	23
4.2 Assessment framework for countries' readiness to engage with Article 6 .....	24
<b>5 Ukraine's readiness to engage with market options under Article 6</b> .....	<b>25</b>
5.1 Enabling conditions .....	25
5.2 Feasibility to maintain robust accounting and MRV .....	26
5.3 Compatibility of NDC .....	27
5.4 Engagement with Article 6 options .....	28
<b>6 Conclusions and recommendations</b> .....	<b>29</b>
6.1 Recommendations related to all Article 6 options .....	29
6.2 Option-specific recommendations .....	30
<b>7 References</b> .....	<b>31</b>

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## List of Figures

Figure 1:	GHG emissions in Ukraine .....	11
Figure 2:	Number of JI Projects by Country .....	12
Figure 3:	Provisional activities for inclusion in the MRV system at initial stage .....	15
Figure 4:	Key stakeholders in Ukraine’s climate policy .....	20
Figure 5:	MACC for Status Quo Policy Scenario (2030) .....	21
Figure 6:	GHG emissions by scenario.....	22

## List of Tables

Table 1:	Overview of socio-economic indicators for Ukraine.....	9
Table 2:	Overview of energy statistics for Ukraine .....	10
Table 3:	Portfolio of JI Projects in Ukraine and expected volume of ERU.....	13
Table 4:	Issued number of ERU in Ukraine by track.....	13
Table 5:	Portfolio of GIS Projects in Ukraine.....	14
Table 6:	Potential non-exhaustive options for ITMO transfers under Article 6 .....	23
Table 7:	Indicators and factors used in readiness assessment .....	24
Table 8:	Summary of the indicator ‘Enabling conditions’ .....	26
Table 9:	Summary of the indicator ‘Feasibility of maintaining robust accounting and MRV’ .....	27
Table 10:	Summary of the indicator ,Compatibility of NDC‘ .....	28
Table 11:	Potential engagement options for Ukraine based on the readiness assessment .....	29

## Project Background

This case study is part of the third work package of the research project “Analysis of interactions between new market mechanisms and emissions trading systems” tendered by the German Emissions Trading Authority (DEHSt) at the German Environment Agency (UBA) (FKZ 3714 41 506 0). It builds upon two previous outputs produced under the project (see Kachi et al. 2016; Cames et al. 2016).

### *Study objectives*

Germany has been a key-actor in promoting market instruments and in fostering an international carbon market in the past. In the context of the paradigm shift induced by the Paris Agreement, the question arises in how far the existing German cooperation in the field of carbon markets needs to be readjusted and further developed in line with rules and regulations to be further developed under Article 6, as well as incorporating the interests of Germany and its partners. The purpose of this research is to gather evidence towards answering this question.

To achieve this purpose, a focus has been placed on three exemplary cases from countries that have traditionally collaborated with Germany on carbon markets. The case studies build upon the rationale that different countries find themselves at different stages of carbon market development and that the development stages have specific implications for the potential use of Article 6. Deeper thought is given to each country’s explicit interest in participating in carbon market development in a post-Paris world and its capability to realise this interest. In the absence of concrete rules for Article 6, the assessment provides a first order estimate of the readiness of countries to engage in Article 6, and identifies pathways for Germany to continue supporting its partner countries in developing rule-based and well-functioning market instruments.

### *Approach*

The case studies are the concluding component of a three-stage framework in the aforesaid project:

- 1. German carbon market cooperation:** As a first step, current German engagement in carbon market cooperation, including in major initiatives and funds, was outlined. This set the stage for compilation of a comprehensive carbon market cooperation inventory.
- 2. Country selection process:** In the second step, the cooperation inventory was taken as the basis for selecting countries for the case study assessment. Three candidates were chosen based on a multi-step selection approach. These represent a spectrum of different levels of carbon market development (from early to advanced). The **selected countries were Ethiopia (early), Vietnam (medium) and Ukraine (advanced)**.
- 3. Case studies:** An in-depth analysis of the three case countries was undertaken in the third step. The case studies provide a first order estimate of a countries’ readiness to engage in different market options presented by Article 6 and the pathways for future cooperation with Germany for developing rule-based and well-functioning market instruments.

**Note:** The first two components have been developed as a stand-alone document. These along with the other two case studies can be found at: <https://www.dehst.de/EN/carrying-out-climate-projects/prospects/prospects-node.html>.

### *Methods*

The case studies combine a thorough desk research with expert interviews to arrive at a meaningful analysis and derive concrete recommendations on a country level and beyond. They also benefit from two international workshops carried out in January 2017 and May 2017 that provided additional insights and feedback on the assessment.

## Acknowledgement

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Finally, the paper benefits from inputs provided by Dr. Karsten Karschunke from the German Environment Agency at various stages of this research.

## Abstract

This paper discusses the current readiness of Ukraine to engage in carbon market options that the provisions of Article 6 of the Paris Agreement may present. Engagement readiness is discussed for three indicators: enabling conditions present in the country to participate in markets; feasibility of maintaining robust accounting and MRV to ensure the quality of generated reductions and transparency of transfers; and the compatibility of the country's Nationally Determined Contribution (NDC) to maintain the environmental integrity of Article 6 and strengthen mitigation ambition of the Paris Agreement. The paper argues that both the cooperative approaches under Article 6.2 and the mechanism based on baseline and crediting instruments under Article 6.4 could be viable for Ukraine to participate in the post 2020 international carbon market. These assessment results are based on solid analysis of empirical evidence from interviews, insights from project workshops and literature review regarding various factors discussed under the three indicators.

Basing on the assessment, recommendations are provided on how Germany could further support Ukraine to participate in Article 6. Several entry-points are identified such as supporting MRV capacity building to ensure its sufficiency and compatibility with Article 6 requirements; providing political, technical and financial support for the creation of a specialised body responsible for climate policy issues; enhancing dialogue with broader stakeholders within the country; and conducting further studies on mitigation potential in various sectors. The case study also highlights the need for detailed and demand-driven, tailor-made technical exchange on the design and linking of emissions trading systems, which would support Ukraine's potential participation in Article 6.2.

## Kurzbeschreibung

In diesem Bericht wird die derzeitige Ausgangslage der Ukraine erörtert, sich an den marktbasierenden Ansätzen zu beteiligen, die in Artikel 6 des Pariser Abkommens vorgesehen sind. Diese Ausgangslage wird auf Basis von drei Dimensionen diskutiert: aktuelle Rahmenbedingungen im Land, welche die Teilnahme am Kohlenstoffmarkt ermöglichen könnten; die Kapazität, robuste Bilanzierungsregeln und MRV-Prozesse zu gewährleisten, um die Qualität der generierten Reduktionen und die Transparenz der Transfers zu gewährleisten; und die Vereinbarkeit des national festgelegten Beitrags des Landes zur Aufrechterhaltung der Umweltintegrität von Artikel 6 und zur Steigerung des Ambitionsgrads des Pariser Abkommens. Die Studie argumentiert, dass sowohl kooperative Ansätze unter Artikel 6.2 als auch der Mechanismus unter Artikel 6.4 mögliche Einstiegspunkte zum internationalen Kohlenstoffmarkt für die Ukraine bieten können. Diese Behauptungen basieren auf den empirischen Beispielen aus Interviews, Projektworkshops und Literaturrecherche zu verschiedenen Faktoren, die im Rahmen von drei Indikatoren diskutiert werden.

Auf Basis der Bewertung werden Empfehlungen für Deutschland zur weiteren Unterstützung der Teilnahme der Ukraine an Artikel 6 gemacht. Mehrere Einstiegspunkte werden identifiziert, wie z.B. die Unterstützung von MRV-Kapazitäten, um ihre ausreichende Kompatibilität mit den Anforderungen des Artikels 6 zu gewährleisten; politische, technische und finanzielle Unterstützung für die Schaffung einer für klimapolitische Fragen zuständigen Institution in der Ukraine; die Intensivierung des Dialogs mit einem breiteren Feld von Stakeholder-Gruppen innerhalb des Landes; und die Vorbereitung neuer Analysen über das spezifische Minderungspotenzial in verschiedenen Wirtschaftssektoren. In der Fallstudie wird auch der Bedarf an einem detaillierten und nachfrageorientierten technischen Austausch über die Gestaltung und Verknüpfung von Emissionshandelssystemen hervorgehoben, der die potenzielle Beteiligung der Ukraine an Artikel 6.2 unterstützen würde.

## List of Abbreviations

<b>AAU</b>	Assigned Amount Unit
<b>BAU</b>	Business as usual
<b>CAT</b>	Climate Action Tracker
<b>CDM</b>	Clean Development Mechanism
<b>COP</b>	Conference of the Parties
<b>CORSIA</b>	Carbon Offsetting and Reduction Scheme in International Aviation
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>ERU</b>	Emissions Reduction Unit
<b>ETS</b>	Emissions trading system
<b>EU</b>	European Union
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse gas
<b>GIS</b>	Green Investment Scheme
<b>GIZ</b>	Deutsche Gesellschaft für die Internationale Zusammenarbeit
<b>ICAO</b>	International Civil Aviation Organisation
<b>ICAP</b>	International Carbon Action Partnership
<b>ITMOs</b>	Internationally transferred mitigation outcomes
<b>ITL</b>	International Transaction Log
<b>JI</b>	Joint Implementation
<b>KP</b>	Kyoto Protocol
<b>LULUCF</b>	Land use, land use change and forestry
<b>MACC</b>	Marginal abatement cost curve
<b>MENR</b>	Ministry of Ecology and Natural Resources, Ukraine
<b>MRP</b>	Market Readiness Proposal
<b>MRV</b>	Monitoring, reporting and verification
<b>NECU</b>	National Ecological Centre of Ukraine
<b>NDC</b>	Nationally determined contribution
<b>NGO</b>	Non-governmental organisation
<b>PMR</b>	Partnership for Market Readiness of the World Bank
<b>SBSTA</b>	Subsidiary Body for Scientific and Technological Advice
<b>SEIA</b>	State Environmental Investment Agency, Ukraine
<b>UNDP</b>	United Nations Development Programme
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>USAID</b>	United States Agency for International Development
<b>WTO</b>	World Trade Organisation

# 1 Introduction

Ukraine	
<b>Profile:</b>	Economy in Transition
<b>Income group:</b>	Lower Middle Income
<b>Population:</b>	45.2 million, in 2015
<b>GHG emissions:</b>	322.9 M t CO <sub>2</sub> e, in 2015 (excl. LULUCF)
<b>Key growth sectors:</b>	Energy, Industrial Processes and Product Use

Ukraine became an independent sovereign state after the collapse of the Soviet Union in 1991 and is still in transition to a market economy. The country experienced a deep economic crisis between 1991 and 1995, characterized by a significant decline of GDP and production volumes, hyperinflation, and massive privatization. The period between 1990 and 1999 was characterized by large emissions reductions, mainly due to economic transition and structural changes such as the shift from energy-intensive production sectors towards services (SEIA 2014: 23). The government overcame the crisis by the late 1990s, and between 2000 and 2008 the country's GDP increased substantially. In this period, emissions grew at a rate of 1.6 % per year (SEIA 2014: 23). In 2008, Ukraine joined the World Trade Organization (WTO), thus strengthening its international economic ties. The world financial crisis led to a decrease in energy consumption and greenhouse gas (GHG) emissions, mainly from manufacturing, industrial processes, and construction. After recovering from the crisis in 2010, the economy reached a new high in 2013, with the GDP amounting to 183.3 billion USD (Table 1). In 2014, however, the next economic downturn followed, which is still ongoing.

**Table 1: Overview of socio-economic indicators for Ukraine**

	1990	2000	2010	2011	2012	2013	2014	2015
Population, total (millions)	51.9	49.2	45.9	45.7	45.6	45.5	45.4	45.2
Population growth (annual %)	0.2	-1.0	-0.4	-0.4	-0.2	-0.2	-0.3	-0.4
GDP (current in billion USD)	n/a	31.3	136.0	163.2	175.8	183.3	133.5	90.6
GDP growth (annual %)	-6.3	5.9	4.2	5.5	0.2	0.0	-6.6	-9.9
Agriculture, value added (% of GDP)	25.6	17.1	8.4	9.5	9.1	10.0	11.7	14.0
Industry, value added (% of GDP)	44.6	36.3	29.3	29.1	28.4	25.8	26.2	26.3
Services, etc., value added (% of GDP)	29.9	46.6	62.3	61.4	62.5	64.2	62.2	59.7
Exports of goods and services (% of GDP)	27.6	62.4	47.1	49.8	35.4	43.0	48.6	52.8
Imports of goods and services (% of GDP)	28.7	57.4	51.1	56.4	56.4	52.2	52.1	54.8

Source: World Bank 2016

The crisis of 2014 was rooted in the geopolitical position of Ukraine as a transit country between its Eastern and Western partners. On the one hand, Ukraine is a part of the European Union's (EU) European Neighbourhood Policy and the Eastern Partnership, which aim to bring the EU and its partners closer. The agenda of the Eastern Partnership includes i.a. enhancing economic and energy ties and strengthening energy security. The EU-Ukrainian energy cooperation also involves progressive integration of the Ukrainian energy market with that of the EU. On the other hand, Ukraine has close historic and economic relations with Russia. In 2014, Ukrainians protested in Kyiv, demanding closer association with the EU and the removal of president Yanukovich who opposed it. The uprising resulted in the change of government, and Ukraine signed the Association Agreement with the EU (see section 2) that includes i.a. Free Trade Agreement provisions. The Association Agreement entered into force in 2017. However, the political crisis led to the outbreak of conflict in the Eastern part of the country. Since 2014, Ukraine has been struggling to restore peace on its territory and ensure economic stability. Industrial production volumes as well as international trade and investments have declined considerably.

The position as a transit country influences Ukraine's energy policy to a large extent. Ukraine is the main transportation hub of Russian gas to Europe (SEIA 2014: 19). Being one of Europe's largest energy consumers and one of the most energy and carbon intensive European countries (SEIA 2014: 36), Ukraine was until recently highly dependent on Russian natural gas and oil. Yet, it also extracts and produces all types of energy domestically (coal, natural gas, petroleum, electricity and heat energy) and owns 3.5 % of global coal reserves (SEIA 2014: 18; 20).

The country is, however, striving to lessen energy dependence and diversify its energy mix, as stated, for example, in the Energy Strategy 2035, which was adopted in August 2017 (Cabinet of Ministers of Ukraine 2017). To this end, measures to enhance energy efficiency and increase the deployment of renewable energy as well as nuclear energy would play a key role. Back in 2009, the country introduced the 'green tariff' for the production of electricity by solar and wind power plants (SEIA 2014: 20). Since then, installed wind and solar power capacity has been growing, although their share in the energy mix remains low (0.1 % of the total primary energy supply in 2015) (Cabinet of Ministers of Ukraine 2017). According to the new Energy Strategy, the country aims to increase the share of renewables including large hydro to 25 % of its total primary energy supply by 2035 and significantly decrease the share of coal (to 12.5 % from the current 30.4 %). Currently, the total primary energy supply mix comprises 30.4 % coal, 28.9 % natural gas, 25.5 % nuclear, 11.6 % oil, and around 4 % renewables including large hydro (Cabinet of Ministers of Ukraine 2017).

**Table 2: Overview of energy statistics for Ukraine**

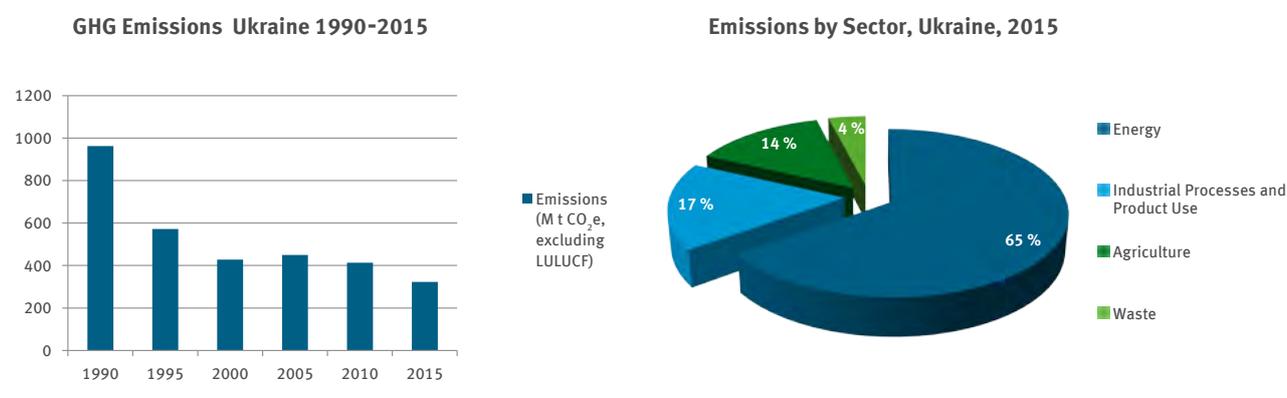
	1990	2000	2010	2011	2012	2013
CO <sub>2</sub> emissions (metric tons per capita)	n/a	6.5	6.6	6.3	6.5	6.0
Fossil fuel energy consumption (% of total)	91.8	84.2	84.2	79.6	79.3	78.2
Electric power consumption (kWh per capita)	4787.5	2778.4	3549.8	3662.4	3640.6	3600.2
Electricity production from coal (% of total)	38.2	30.1	36.9	38.2	40.5	41.8
Electricity production from natural gas (% of total)	16.7	17.5	8.3	9.5	8.1	7.2
Electricity production from oil (% of total)	16.1	0.7	0.4	0.3	0.3	0.2
Electricity production from nuclear (% of total)	25.5	45.2	47.3	46.3	45.4	43.0
Electricity production from hydro (% of total)	3.5	6.6	7.0	5.6	5.3	7.1
Electricity production from renewables (% of total)	0	0.0	0.1	0.1	0.4	0.7

Source: World Bank 2016

Energy is the largest source of greenhouse gas (GHG) emissions, responsible for around 65 % (without LULUCF) in 2015 (Figure 1), followed by industry (17 %). Around 81 % of energy sector emissions come from fuel combustion and about 19 % are fugitive emissions (MENR 2017b: 8). Within energy sector emissions, energy industries are responsible for 45 % of emissions, and manufacturing industries and construction for another 8 %. Transport makes up 15 % of emissions. In industrial processes, major sources of emissions are metal production, chemicals and mineral products (MENR 2017b: 118).

Ferrous and steel metallurgy play a prominent role; cement production is another large source of carbon dioxide emissions, both from direct energy consumption as well as from chemical process for clinker production (SEIA, 2014: 23). The agricultural sector is the third largest source of emissions (14 %), followed by waste (4 %). In 2015, GHG emissions in Ukraine constituted 322.9 M t CO<sub>2</sub>-eq. excluding LULUCF, which was 66.4 % lower than in 1990, and 12.3 % lower than in 2014. The country expects growth of industrial production levels to reconstruct facilities and infrastructure that fell victim to the conflict of 2014, which may lead to an increase in emissions in the near future (UNFCCC 2015: 1).

Since 2000, signs of gradual decoupling of emissions from the economic development can be traced: The growth of emissions is not directly correlated with the rate of economic development. This is mainly due to economic restructuring and the growth of the services sector as well as activities to increase energy efficiency and reduce carbon intensity of production implemented by the government (MENR 2016: 5). Still, Ukraine's economy remains highly emissions-intensive. Energy efficiency is relatively low in many sectors (2.1 times lower than in the world's average and 4 times lower compared to developed countries) (PMR n/a), and institutional and legal arrangements limit incentives to invest in abatement technologies (SEIA 2014: 18). Restructuring the economy to pursue a path of low carbon growth is one of the country's top priorities.



Source: National Inventory Report Ukraine 2017

Figure 1: GHG emissions in Ukraine

### Climate Policy Milestones

Ukraine has adopted a number of strategic policies that reaffirm the goal of low-carbon economic development, for example, the Concept of the National Policy in Climate Protection until 2030 (Cabinet of Ministers of Ukraine 2016), and it ratified the Paris Agreement on 19 September 2016. In its Nationally Determined Contribution (NDC), Ukraine unconditionally pledges not to exceed 60 % of its 1990 GHG emissions (including LULUCF) in 2030. It also has a long-term commitment to reduce emissions by 50 % from 1990 levels (excluding LULUCF) by 2050 (SEIA 2014: 9). In August 2017 the Energy Strategy 2035 was adopted, which sets the target to reduce GHG emissions from final energy consumption by 20 % from 2010 levels by 2035. Climate goals set in the Energy Strategy have received positive assessments from the Ukrainian NGOs (interview with “Ecoaction”).

### International Climate Cooperation with Germany

International cooperation plays an important role for achieving the country's climate targets. Germany has built a solid partnership with Ukraine in the area of climate change mitigation. Through the International Climate Initiative, Germany has implemented several projects with the main focus on establishing a robust monitoring, reporting and verification (MRV) system and building capacities for introducing a domestic emissions trading scheme (ETS) in Ukraine, which were carried out by the United Nations Development Programme (UNDP), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), and a number of think tanks and consultancies. Main types of cooperation have been capacity building and technical support. Currently the GIZ is involved in a project on the development of an ETS in Ukraine. Germany also provides financial support to several multilateral initiatives such as the World Bank's Partnership for Market Readiness (PMR), whose mandate is to support the development of carbon pricing instruments in participating countries including Ukraine.

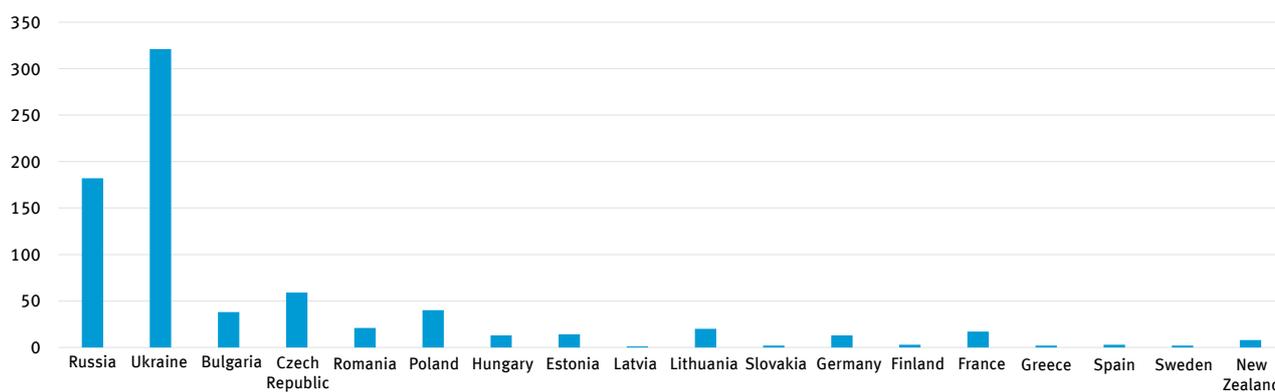
The case study is structured as follows: Section 2 provides an overview of the carbon market experience of Ukraine, starting from the years of the JI to the current work and the plans under the nationally determined contribution (NDC). Section 3 elucidates Ukraine’s position on the use of Article 6 of the Paris Agreement and identifies current domestic capabilities for participation. Section 4 introduces a non-exhaustive list of market options that may exist in the post-Paris market mechanisms. It further outlines the framework for assessing country readiness to engage with these market options. Based on this assessment framework, Section 5 then provides a comprehensive assessment of Ukraine’s readiness with regards to the different participation options and respective needs for the implementation of these options. Finally, in Section 6, specific recommendations and entry points for Germany to further support Ukraine’s participation in Article 6 are provided.

## 2 Setting the scene: carbon markets in Ukraine

Ukraine has gained significant experience with international market-based mechanisms, especially compared to its neighbouring countries, and is developing domestic market instruments. This section gives an overview of Ukraine’s carbon market portfolio as well as key stakeholders in the country’s climate policy. Finally, a brief analysis of Ukraine’s NDC with regard to market mechanisms is presented.

### 2.1 Glance into the past: International carbon market activities

Ukraine is an Annex I Party to the United Nations Convention on Climate Change (UNFCCC) and an Annex B Party to the Kyoto Protocol (KP)<sup>1</sup>. Ukraine has actively been using the KP international market based mechanisms, in particular, Joint Implementation (JI) and trading of the Assigned Amount Units (AAUs) under the Green Investment Scheme (GIS). Figure 2 shows that Ukraine implemented the largest number of JI projects (321 in total). It has also been the largest supplier of Emissions Reduction Units (ERUs), with 516,736 issued kERUs. As demonstrated by Table 4, the majority of the projects were implemented within the Track 1 procedure, which differs from Track 2 through the lack of oversight of the verification procedure and accreditation of Independent Entities by the JI Supervisory Committee (UNFCCC 2014). Within Track 2, only Russia implemented more JI projects than Ukraine, but the number of ERUs issued from Ukraine’s projects was significantly higher. In Ukraine, JI has been regarded as an important mechanism for attracting foreign investment for the implementation of emissions reduction measures in industry (SEIA 2014: 36). As demonstrated in Table 3, the highest number of projects, also responsible for the majority of ERUs, was implemented in the areas of industrial energy efficiency, energy distribution, and fugitive emissions. The majority of JI projects were supported by EU countries, primarily Denmark, Germany, Ireland, Netherlands and the United Kingdom, as well as by Japan and Switzerland (SEIA 2014: 36).



Source: UNEP JI Pipeline 2017

Figure 2: Number of JI Projects by Country

<sup>1</sup> Annex I Parties to the UNFCCC include the industrialized countries that were members of the OECD (Organisation for Economic Cooperation and Development) in 1992, plus countries with economies in transition, including the Russian Federation, the Baltic States, and several Central and Eastern European States. Annex B Parties to the Kyoto Protocol includes 38 countries plus the European Community that accepted quantified emission limitation and reduction commitments.

The assessment of the implementation of JI projects in Ukraine conducted by the National Ecological Centre of Ukraine (NECU) in 2012 revealed both positive and negative experiences. On the one hand, JI facilitated the implementation of emission reduction projects that would not have happened otherwise such as coal mine methane and N<sub>2</sub>O emission reduction projects at nitric acid plants as well as certain fuel switch and landfill gas projects (NECU 2012: 6). Moreover, JI triggered bottom-up emission reductions efforts in the industry sector, which was crucial for raising awareness of the private sector about the importance of industrial transformation. It also led to increased understanding among companies that they can benefit from taking measures to mitigate GHG emissions (interview with “Ecoaction”<sup>2</sup>). JI gave birth to domestic consulting companies in the area of climate change and helped the private sector to develop “a taste for mitigation projects” (interview with a carbon market negotiator).

**Table 3: Portfolio of JI Projects in Ukraine and expected volume of ERU**

Project type	Registered projects	Total kERUs*
Agriculture	12	28225
Biomass Energy	8	1231
Cement	3	4418
Coal bed/mine methane	16	28525
Energy Distribution	45	73911
Energy efficiency (EE) households	1	3493
EE industry	57	125039
EE own generation	7	11117
EE service	14	9337
EE supply side	12	18830
Fossil fuel switch	3	5668
Fugitive	116	413840
Hydro	3	2015
Landfill gas	9	1637
Methane avoidance	3	1204
N <sub>2</sub> O	3	5556
Solar	1	38
Transport	4	9224
Wind	4	3354
<b>Total</b>	<b>321</b>	<b>746661</b>

\*Includes registered kERUs and those at determination  
Source: UNEP JI Pipeline

**Table 4: Issued number of ERU in Ukraine by track**

	Track 1	Track 2	Total
No. of projects	250	71	321
Issued kERUs	506551	10185	516736

On the other hand, problems started to arise at a later stage under Track 1 procedure. Due to the loopholes of JI, many “free riders” could enter the system, i.e. projects that could be implemented without JI but used the mechanism to raise easy funding (NECU 2012: 6).

<sup>2</sup> For more information about the interviewees see Annex.

Projects were approved of in large numbers, while thorough control of the quality of each of them was partly lacking. This resulted in doubts regarding real additional mitigation from some of the projects, insufficient transparency and in some cases apparent “re-labelling” of already existing projects for JI purposes (interview with “Ecoaction”; Kollmuss et al. 2015: 79). Estimated required costs of some projects were much higher than the actual financial needs (interview with “Ecoaction”). This not only undermined environmental integrity and trust in JI but also flooded the international carbon offset market supply with cheap emission reduction credits that, in combination with other factors, drove down the international carbon price.

Along with JI, Ukraine also participated in the GIS, another international market mechanism based on International Emissions Trading defined under Article 17 of the KP. The GIS was introduced to allow governments to sell surplus international emission rights under Kyoto commitment periods to other governments for their compliance purposes. The revenues had to be “greened”, i.e. channelled to the development and implementation of projects that achieve GHG emission reductions (hard greening) or build up the necessary framework for this process (soft greening) (Li and Tänzler 2016: 5). While Annex I countries were not willing to buy “hot air” for compliance, GIS could unlock the surplus AAUs in Central and Eastern Europe, and at the same time leverage financial revenues from AAU sales for climate benefits in the host countries. From a legal perspective, GIS represents a self-imposed binding commitment by the seller countries to fulfil the conditions of the buyers (Türk et al. 2008: 5). In 2009, Ukraine set a provisional target to sell 400 million AAUs under the GIS (Türk et al. 2013: 19). Despite a large amount of AAUs to offer<sup>3</sup>, Ukraine only concluded three deals under the scheme. The reasons for that were the absence of clearly defined investment and greening schemes and the unstable political situation (Türk et al. 2013: 7) as well as a lack of international demand (interview with “Ecoaction”). Priority areas for GIS projects identified by the government were energy efficiency in buildings and in Kyiv subway, reconstruction in public and residential buildings, thermal measurement equipment, district heating, modernisation of the mining sector, and waste water treatment (Türk et al. 2013.: 30). Table 5 gives an overview of the deals concluded by Ukraine. In 2009, 44 million AAUs were sold to Japan’s government and private companies. In 2012, Ukraine and the Sumitomo Corporation agreed on the delivery of about 1200 Toyota Prius hybrid cars for Ukraine’s police vehicle renewal project as part of the 2009 agreement (Türk et al. 2013: 19). Further 3 million AAUs were sold to Spain in 2009. In 2011, UN suspended Ukraine from AAU trading for violating KP emissions reporting rules, but it regained eligibility in 2012.

**Table 5: Portfolio of GIS Projects in Ukraine**

Seller	Buyer	M t CO <sub>2</sub>	Date Agreed	Project Type
Ukraine	Japan (New Energy and Industrial Technology Development Organization - NEDO)	30	May 2009	Coal mine water treatment, energy efficiency in public facilities and central heating system, transportation
Ukraine	Japan (Asuka Green Investment, Itouchu, Marubeni, Mitsui, Sojitz, Sumitomo)	14	May 2009	Transportation including hybrid cars
Ukraine	Spain (Spanish Carbon Fund)	3	December 2009	Modernization of a steel mill

Sources: UNEP JI Pipeline; Türk et al. 2013, pp. 32-33

Similar to JI, the implementation of the GIS in Ukraine has received mixed assessment in literature. On the one hand, Ukraine’s government stressed that owing to successful realisation of GIS projects, Ukraine considerably enhanced cooperation with Japan (Türk et al. 2013: 20). On the other hand, projects were criticised by some civil society representatives for being unjustifiably expensive and bringing insignificant emissions reductions (NECU 2013: 1). Moreover, due to substantial delays in project implementation, Ukraine had to return € 5 million in AAU sale proceeds to Japan (Carbon Pulse 2016).

All in all, despite certain weaknesses in the context of JI and GIS projects, participation in international market mechanisms under the KP allowed Ukraine to gain valuable experience that can be built upon in the future.

<sup>3</sup> The amount of AAUs that Ukraine’s government planned to reserve for GIS was second largest after Poland. This amount is, however, not to confuse with the actual AAU surplus, which was much higher in some cases (e.g. Russia) (Türk et al. 2013: 7).

In particular, necessary institutional arrangements were made to realise and manage GHG mitigation projects; national legislation regulating project activities and their accounting was adopted (SEIA 2014: 36). A large number of enterprises participated in the project activities and gained experience of collecting and processing GHG data, monitoring and reporting emissions, as well as providing verification services (SEIA 2014: 36).

## 2.2 Domestic carbon market activities

The history of domestic carbon pricing in Ukraine began with fiscal instruments. In 2011, a tax on CO<sub>2</sub> emissions came into effect as part of a wider environmental tax designed to limit emissions of various pollutants into the atmosphere, water and soils (SEIA 2014: 37). Currently, the GHG tax component covers almost all stationary sources of GHG emissions, mainly the power sector and processing industry, with revenues going to the national budget. However, the tax rate is very low (about 0.02 EUR per t CO<sub>2</sub>), and some studies have indicated that its impact is negligible (Frey 2016). However, the tax could play a complementary role supporting other climate policy instruments.

### 2.2.1 Partnership for Market Readiness

To enhance state control over GHG emissions, in 2011 the Cabinet of Ministers of Ukraine mandated the State Environmental Investment Agency of Ukraine (SEIA)<sup>4</sup> (see 2.3 for more information) to develop draft regulations on the MRV of anthropogenic GHG emissions (SEIA 2014: 9). The work on MRV legislation is supported by the World Bank's Partnership for Market Readiness (PMR), which Ukraine joined in 2011. The development of the MRV system at facility level was placed at the core of the Market Readiness Proposal (MRP) submitted to the PMR Secretariat in 2014. MRV is seen "as a critical prerequisite for selection and implementation of the GHG reduction instruments, both fiscal and market-based" (SEIA 2014: 11).

In 2014, the PMR resolution decided on allocating Implementation Phase Funding in the amount of USD 3,000,000 for carrying out PMR activities identified in Ukraine's MRP (PMR 2014). The grant must be implemented by 30 June 2019 (PMR 2016). In particular, the funding provides support for Ukraine to develop the regulatory framework for the operation of the MRV system (including MRV framework law as well as secondary and complementary regulations); establish requirements and procedures at installations level for the development of the monitoring plan, preparation and verification of reports on GHG emissions; and develop methodologies for each type of activities included in the MRV system, monitoring and reporting templates, and comprehensive guidelines for the operators (SEIA 2014: 12-13). At a later stage, Ukraine is planning to receive international support for the development of an MRV database including the inventory of installations and GHG emissions, personnel trainings in maintenance of the database as well as more general trainings of stakeholders on MRV. These activities are not within the scope of the PMR project.

1. Stationary Combustion of Fuels
2. Production of Iron and Steel
3. Production of Ferroalloys
4. Metallurgical Coke Production
5. Production of Cement
6. Production of Ammonia
7. Production of Limestone
8. Production of Nitric Acid
9. Production of Adipic Acid

Source: SEIA, 2014

Figure 3: Provisional activities for inclusion in the MRV system at initial stage

<sup>4</sup> Since the dissolution of the SEIA in 2015, this work has been carried out by the Ministry for Ecology and Natural Resources of Ukraine.

A robust MRV system is seen as a solid starting point for the introduction of domestic market-based instruments, in particular the national ETS. To this end, the PMR is providing support to assess the design options for a domestic ETS with primary focus on methodological and design issues for benchmarking and auctioning (SEIA 2014: 13).

## 2.2.2 Association Agreement with the European Union

The introduction of a national ETS is stipulated not only by the national climate targets, but also by the “Association Agreement with the European Union and the European Atomic Energy Community and their member states, of the one part, and Ukraine, of the other part” (referred to as Association Agreement). It was ratified by the country in September 2014 (ICAP 2017: 34). The main objective of the Agreement was gradual approximation of Ukraine’s policies and legislation in various spheres (economy, financial sector, legal system, environment, etc.) to those of the EU, in return of financial and political support as well as preferential access to the EU markets (SEIA 2014: 10). Climate change-related issues are addressed in Article 365 (c) Title V and Annex XXX to the Agreement. According to them, Ukraine has to adopt national legislation and designate competent authorities, establish a system for identifying relevant installations and GHGs, develop a national allocation plan to distribute allowances to installations, establish a system for issuing GHG emission permits, issue allowances to be traded domestically, and introduce MRV and enforcement systems and public consultations procedures (Association Agreement 2014: Annex XXX). Joining the EU ETS is seen as an essential element for closer economic association with the EU. The Agreement foresees the introduction of an ETS within two years of its entry into force (Association Agreement 2014: Annex XXX). It fully entered into force in 2017.

In 2016, the Cabinet of Ministers of Ukraine adopted a Concept of State Climate Change Policy Implementation until 2030 (Cabinet of Ministers of Ukraine 2016). The concept mentions i.a. the objectives of developing and implementing a domestic ETS in accordance with the provisions of Directive 2003/87/EC and setting up and ensuring operation of an MRV system. In 2017, the government adopted a new Roadmap for the implementation of the MRV system and ETS. The Roadmap includes the development of a legal and technical basis for MRV, pilot activities in industry and power sector, trainings for stakeholders, analysis of potential benchmarks for ETS sectors, and the development of ETS elements such as competent authority, data management system, allocation plan etc. (MENR 2017a). The MRV system is planned to become operational in 2019, but it would need to function successfully for at least two years to enable the launch of an ETS.

The country is provisionally considering the coverage of various sectors in the future national ETS, with a mixture of obligatory or voluntary involvement, as revealed by the interviews. While conceptualising the ETS design, Ukraine is looking at experiences of different countries and regions including Japan, Canada, the Western Climate Initiative, etc. (interview with a carbon market negotiator). Apart from the PMR, Ukraine is working on MRV and ETS development with the assistance of the European Bank for Reconstruction and Development (EBRD), US Agency for International Development (USAID), GIZ, UNDP and other institutions (ICAP 2017: 34; ClimaEast 2017, and UNDP n/a).

## 2.3 Glance into the future: Ukraine’s first NDC under Paris Agreement

Ukraine ratified the Paris Agreement on 19 September 2016, and its INDC (now its first NDC) was submitted on 30 September 2015. In its NDC, Ukraine stated that it will actively participate in existing and future international market mechanisms, and that its current emission reduction target does not take market mechanisms into account (Ukraine’s NDC 2015). In addition to the intention to participate in market mechanisms under Article 6, Ukraine is also willing to voluntarily participate in International Civil Aviation Organization (ICAO)’s global market-based measure scheme from its outset (European Civil Aviation Conference, 2016).

Ukraine unconditionally aims to reduce GHG emissions by at least 40 % below 1990 levels, including LULUCF, by 2030, which would be equivalent to 40 % below 1990 levels excluding LULUCF under current trends (Climate Analytics et al. 2017). Its NDC covers energy, industrial processes and product use, agriculture, LULUCF and the waste sector, but does not specify the mitigation contribution of each sector.

The most recent emissions data shows that in 2015, emissions excluding LULUCF were 66.4 % below 1990 levels (MENR 2017b). The NDC thus allows substantial growth of Ukraine's emissions from present levels, whereas under all scenarios consistent with limiting warming below 2°C, its emissions should be steadily decreasing (Climate Analytics et al. 2017). Due to this, Climate Action Tracker (CAT) has rated Ukraine's NDC as "critically insufficient" in its assessment of the ambition and fairness of the NDCs rates. Under current policy, Ukraine's projected emissions in 2030 will be between 14 % higher to 20 % lower than the NDC target (Climate Analytics et al. 2017). Ukraine has, however, indicated that it is planning to revise its NDC after "the restoration of its territorial integrity and state sovereignty as well as after the approval of post-2020 socio-economic development strategies with account of investment mobilization" (UNFCCC 2015: 2).

Ukraine's extensive experience with market mechanisms spurred the country's interest in market based approaches. In the next section, Ukraine's interest in future carbon markets is discussed along with a thorough assessment of current domestic capacities to participate in them.

### 3 Country position and capabilities

This section encompasses the summary of Ukraine's interest and negotiation position regarding Article 6 and the analysis of Ukraine's domestic capabilities that could support the use of market mechanisms under the Paris Agreement.

#### 3.1 Interest in using international markets and positioning in the usage of Article 6

As already discussed in the previous section, Ukraine's NDC demonstrates the country's intention to use international market mechanisms under the Paris Agreement. In its submissions to the Subsidiary Body for Scientific and Technological Advice (SBSTA) related to Article 6 (UNFCCC 2016b, UNFCCC 2016c and especially UNFCCC 2017b), Ukraine emphasises the importance of a holistic approach towards market provisions stipulated in Article 6.2, 6.4 as well as non-market mechanisms under Article 6.8. The country stresses the importance of non-market approaches, which could include fiscal instruments, general economic instruments, etc.

The submissions do not specify whether Ukraine intends to use both Article 6.2 and 6.4 or one particular market mechanism. From the interviews, the impression is that currently, there is no clear preference at the MENR for either Article 6.2 or Article 6.4; the use of Article 6.8 is also considered.

The submissions state that the implementation of the Paris Agreement strongly depends on how well the experience gained from the KP will be used in the future. In particular, one of the lessons learned as identified by Ukraine was a "lack of simple and clear determination of measuring and legal meaning of mitigation outcomes from KP flexible mechanisms" (FCCC/SBSTA/2016/2, para. 96). To improve this in the future, Ukraine suggests that any and all outcomes from activities under Art. 6.2 and 6.4 shall be quantifiable and measurable in Metric Tons of CO<sub>2</sub>e of already achieved or future mitigation of GHG. It is worth mentioning that the country is strongly against "copying and pasting" CDM methodologies in the Paris Agreement and highlights the necessity for developing a new methodological framework to avoid old mistakes, as revealed by the interviews.

In the SBSTA submission of April 2017, Ukraine makes concrete suggestions to improve the clarity of Article 6. In particular, several types of ITMO classification are proposed such as classification by source (from emissions reduction, absorption and avoidance activities), origin (national, bilateral and multilateral), methodology (adopted by the UNFCCC or Parties), form (units under Article 6.4 or other forms such as e.g. securities) and issuing bodies (UNFCCC or Parties) (UNFCCC 2017b). The country also proposes a number of facilitative bodies to manage market mechanisms, in particular, a monitoring panel mainly focusing on cooperative approaches, a governing panel for a mechanism under Article 6.4, a methodological panel, and a supervisory panel in charge of disputes' resolution. In addition, a non-market facilitative panel has also been proposed.

Ukraine is eager to implement markets under Article 6 and is supporting robust accounting and pushing for environmental integrity. While there are diverging definitions of environmental integrity in the international debate, in the view of Ukraine, it is a sum of environmental and economic soundness.

At the same time, Ukraine is striving to contribute to the creation of a strong, robust and liquid international market. Key questions that are important for the MENR and the private sector in Ukraine at the current stage include the ways of creating a liquid national product, maintaining the market deficit to generate liquidity in the long term and the use of innovative instruments. The country could potentially act both as a buyer and a seller under Article 6, as indicated by the interviews.

## 3.2 Classification of carbon market related country capabilities

This subsection comprises the analysis of Ukraine's current accounting and MRV capacities, administrative and regulatory capacities as well as the potential of various sectors for the future use of market mechanisms under Article 6 of the Paris Agreement.

### 3.2.1 Domestic accounting capacity

Ukraine, as an Annex I Party to the UNFCCC and Annex B Party to the KP, is required to develop and submit annual inventories on GHG emissions and removals, which are not controlled by the Montreal Protocol, to the UNFCCC Secretariat using the methodologies of the Intergovernmental Panel on Climate Change (IPCC). As of April 2017, the country has submitted six National Communications (the latest one in 2013) and one Biennial Report (also in 2013). The most recent National Inventory Report was submitted to the UNFCCC in 2017. The MENR coordinates the preparation and submission of the reports.

National level data, which is used for the national GHG inventory, is the most comprehensive data on GHG emissions and removals in Ukraine. In 2011, the National Centre for GHG Emission Inventory was established as a substructure of the SEIA (now it is a substructure of the MENR) and is in charge of the inventory preparation including data collection, analysis and processing. The national GHG inventory partly also uses sector level emissions data. As for the company-level data, more information is provided in section 3.2.2.

An important experience acquired through the participation in the KP was the development of the automated electronic system for recording and processing information – the National Electronic Registry of Anthropogenic Emissions and Absorption of Greenhouse Gases of Ukraine, which operates in accordance with international standards for technical data interchange (SEIA 2014: 36). The Registry was created to ensure the accurate issuance, holding, transfer, acquisition, cancellation and retirement of AAUs, ERUs, and Removal Units (RMUs), as well as information about individual or corporate bodies generating emissions or absorption of GHGs.

Despite the well-established in-country accounting capacities, Ukraine twice had to respond to issues related to reporting under the UNFCCC but managed to regain compliance in both cases. In 2011, the country was temporarily suspended from participating in KP mechanisms because it was stated that the national reporting system of Ukraine did not ensure that its annual submission was sufficiently transparent, consistent, comparable, complete and accurate as required by the guidelines for national systems (UNFCCC 2011: para. 8, in connection with Annex, para. 12 and 23). Ukraine submitted a progress report on the implementation of the plan to address its non-compliance and regained full eligibility to participate in the KP mechanisms in 2012.

In September 2016, the Compliance Committee of the KP adopted a decision on Ukraine's non-compliance with full reporting requirements under the first commitment period of the KP, primarily because of a temporary interruption of the connection of Ukraine's National Electronic Inventory of Anthropogenic Emissions and Greenhouse Gas Emissions to the International Transaction Log (ITL) in 2015 (UNFCCC 2016a). Nevertheless, after submitting two progress reports to address non-compliance, Ukraine managed to formally demonstrate its full compliance with its commitments under the KP for the first commitment period (UNFCCC 2017a: para. 29).

### 3.2.2 Domestic MRV capacity

In Ukraine, companies have to report their air pollutants and GHG emissions quarterly and annually to the State Statistics Service and environmental agencies on all six types of GHGs included in the Kyoto basket (SEIA 2014: 48). Reporting requirements apply to stationary sources only and not mobile sources. The reported data is used for levying environmental taxes including the CO<sub>2</sub> tax. In addition, through participation in JI projects, some companies also accumulated valuable experience in the collection and processing of the data on GHG emissions as well as the development and maintenance of GHG monitoring systems (NECU 2012).

At the same time, the current system of reporting on GHG emissions at company level requires significant improvement. The reported data is known to be of a rather low quality (interview with MENR, and SEIA 2014: 48). The main reasons for the high level of uncertainty regarding the reported data are (1) the absence of data verification and quality control and (2) the lack of common and consistent methodologies for the calculation of GHG emissions (interview with MENR, and SEIA 2014). Furthermore, the collected data is filed at the regional offices of the State Statistics Service of Ukraine and is currently supplied to the national statistical authorities only aggregately.

The PMR is currently actively supporting the development of an MRV system in Ukraine. A project implementation unit was created to coordinate PMR activities. Templates for monitoring plans and emissions reports are being elaborated, and work is being conducted to launch the MRV pilots in nine companies in various economic sectors (which may include energy, iron and steel, coke, cement, etc.). Support is provided to manage the process of company selection for MRV purposes. Moreover, methodologies for the development of benchmarks suitable for use as an allowance allocation tool in the sectors considered for the national ETS are being developed. Apart from that, the PMR has started working on the methodologies for the accreditation of verifiers (interviews with MENR and “Ecoaction”). While implementing and managing JI projects, the country had experience of accrediting companies to provide third party verification services, which can be built upon for the national ETS. Further work on monitoring and reporting guidance documents and tools will be carried out throughout 2017 and beyond.

To create a comprehensive regulatory framework for a functioning MRV system in Ukraine, the Cabinet of Ministers resolved in May 2011 that “draft acts providing for functioning of the system for state recording, monitoring, reporting, and reliability checks of data related to anthropogenic GHG emissions” are to be developed (SEIA, 2014: 50). In June 2013, the first draft MRV law was prepared by the SEIA. The first draft was rejected, but this work continued under the PMR, whose mandate includes support for the development of a regulatory framework for MRV in Ukraine, including primary legislation, bylaws, and methodological guidance for regulated installations and other stakeholders. The new draft national legislation package on MRV including draft provisions on the accreditation of verifiers is expected to be developed by the end of 2017 and finalized in 2018 (interview with MENR).

The interviews revealed that there is potential to further enhance coordination of international support activities in the field of MRV. In particular, projects that support the development of an MRV system could be better coordinated with those providing technical assistance for the ETS establishment. The latter include components such as the establishment of an electronic data management system, which is also relevant for the development of the MRV system (interview with MENR).

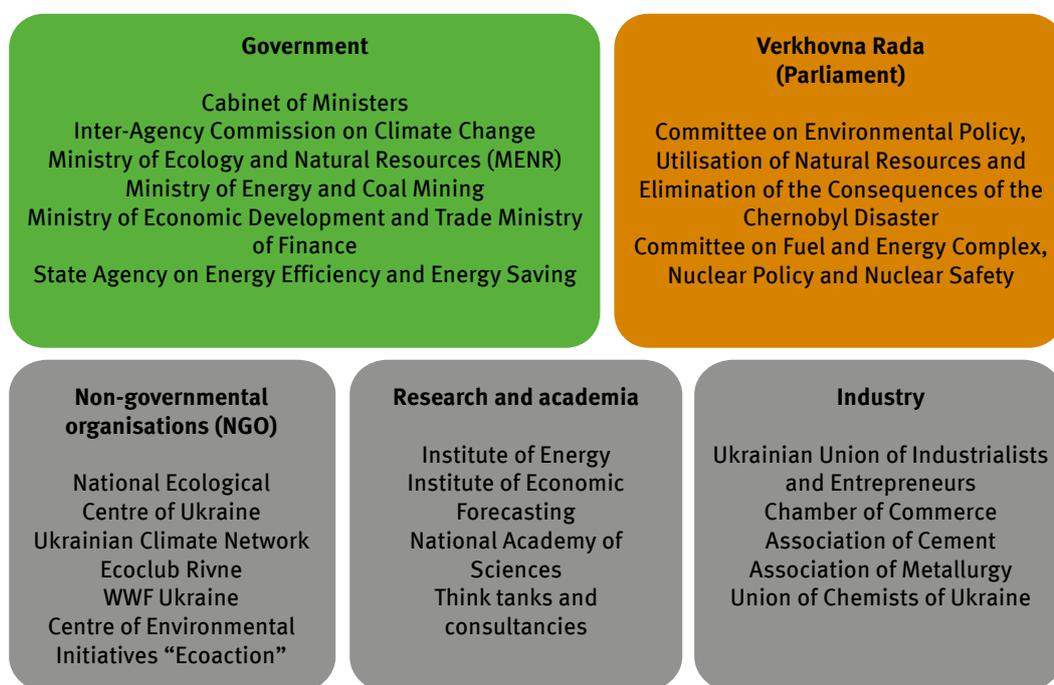
### **3.2.3 Domestic administrative and regulatory capacity**

Several groups of stakeholders that influence Ukraine’s climate policy can be identified (Figure 4). At the governmental level, the MENR is the central executive authority responsible for the formulation and implementation of the national policy in the field of environmental and climate protection, including carbon markets and ETS development. It is also a focal point and beneficiary of the PMR activities in Ukraine as well as support programmes by other donors.

The Inter-Agency Commission on Climate Change (ICCC) was established in 1999, and includes representatives of the MENR, the Ministry of Economic Development, the Ministry of Energy and Coal Industry, the Ministry of Infrastructure, other ministries and departments as well as representatives from the Ukrainian NGO climate network. It coordinates the implementation of national measures in line with Ukraine’s international climate commitments and approves of official submissions to the UNFCCC Secretariat (SEIA 2014: 31). The Cabinet of Ministers is the ultimate decision-making body and is responsible for policy coordination and oversight of state energy companies. The Verkhovna Rada Committee on Environmental Policy and Chernobyl Aftermath Mitigation is a legislative body that initiates and submits environmental and climate laws. The Committee on Fuel and Energy Complex, Nuclear Policy and Nuclear Safety also plays an important role in the development of the climate-related legislation. The landscape of key stakeholders also includes non-governmental organisations, industry associations, academia, research institutions, and climate think tanks.

During the implementation of the KP, the necessary institutional arrangements were established to realise and manage JI and GIS projects, and the responsible state authority – the State Environmental Investment Agency (SEIA) – was in place (SEIA 2014: 36). SEIA was the separate state authority responsible for execution of the UNFCCC provisions and implementation of GHG mitigation projects (SEIA 2014: 35). Along with the implementation and making suggestions for the advancement of the national climate policy, SEIA was responsible for laying the groundwork for national emissions trading as well as acting as the national focal point for international carbon market activities such as JI and the GIS.

Ukraine’s institutional capacities reduced substantially as a result of the dissolution of the SEIA in 2015, which was spurred by the political and economic crisis and the Presidential decree on Optimisation of governmental entities. Functions of the SEIA were delegated to the Department of Climate Change and Ozone Layer Protection within the MENR, which includes a specialised unit devoted to ETS. This institutional change resulted in a considerable reduction of personnel capacities dedicated to the work on ETS and the engagement in international carbon market activities (interview with MENR). It also resulted in occasional partial fragmentation of functions and certain coordination limitations among ministries. For instance, the decision on the participation of Ukraine in the ICAO Carbon Offsetting and Reduction Scheme in International Aviation (CORSIA) was taken with only limited cross-ministerial coordination.



Source: Authors, based on SEIA, 2014 and interviews

Figure 4: Key stakeholders in Ukraine’s climate policy

Against this background, the establishment of a new body specialising in climate policy could bring many benefits, help enhance coordination and build synergies among various international support activities in the area of market-based mechanisms. However, it is not envisaged at the current stage due to a number of issues that need clarification (e.g. the legal ability of the MENR to establish such a body, financial resources, and high-level political support). In an interview, several options for the new authority were identified: It could be a new central executive body at the national level, a regional institution for Central or Eastern Europe (which could also foster regional cooperation and dialogue on market mechanisms) or a public-private partnership at the national or regional level. Interestingly, planned PMR activities include the provision of support for the establishment of the National Competent Authority for administering MRV and ETS, including setting up a “Help Desk” to assist regulated installations in complying with their new obligations under the scheme (PMR 2016). However, no such authority has been established or is envisaged in the near future (interview with MENR).

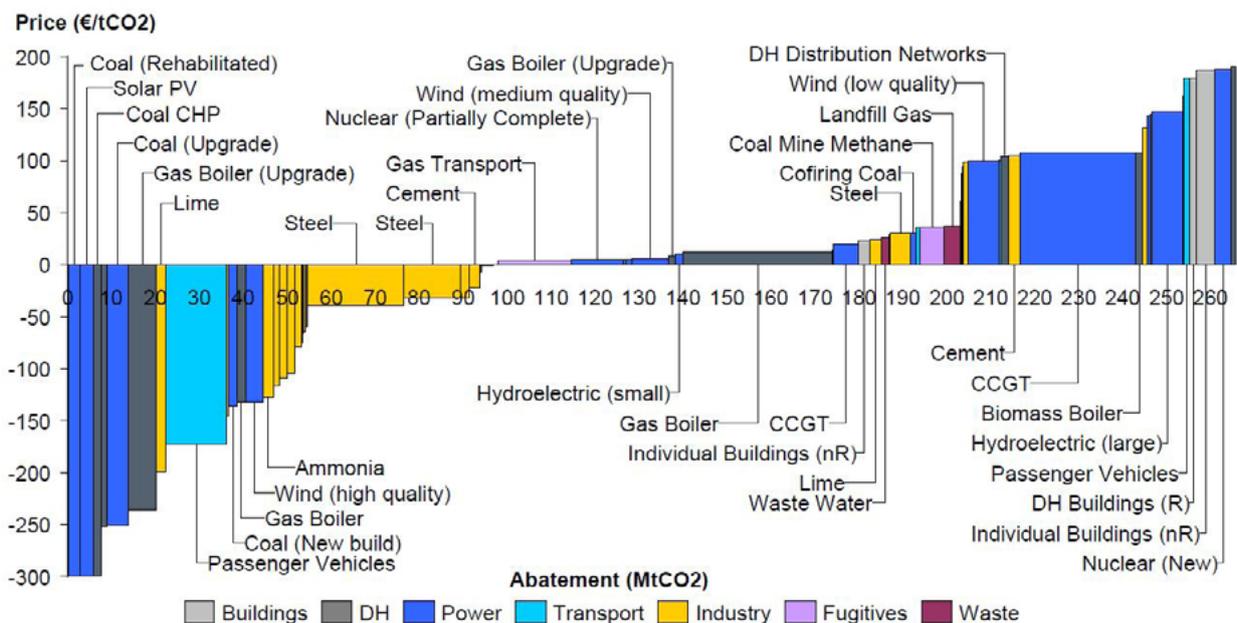
With regard to the regulatory capacity, Ukraine has adopted a number of laws regulating the implementation of JI and accounting of GHG emissions. This legislation was, however, primarily oriented exclusively towards KP mechanisms and has several weaknesses according to NGO assessments, i.e. it was insufficient to ensure that only qualified projects were implemented, and lacked transparency (interview with “Ecoaction”). Currently, intensive work is conducted to develop MRV legislation. The PMR support for the preparation of the MRV legislation has received positive assessments (interview with the MENR). A comprehensive, integrated legislative package is seen as a key prerequisite for establishing a solid basis for carbon market activities.

It is worth mentioning that the positioning of the climate policy, although its role has recently been increasing, still remains a rather low priority within the national policy framework in comparison with other political priorities (PMR 2016 and interviews). A strategic long-term vision on climate change as a key political and security issue at all levels of government would create a robust enabling environment for Ukraine’s participation in carbon markets. Involving a broader range of stakeholders in the discussion on market mechanisms and ETS could also strengthen support for the climate policy (e.g. according to NGO assessments, the Parliament or the Ministry for Economic Development and Trade could be more actively engaged in the debate).

### 3.2.4 Actual mitigation capacity

As mentioned previously, Ukraine’s NDC covers energy, industrial processes and product use, agriculture, LULUCF as well as waste. To assess the mitigation potential of various sectors, EBRD funded a study investigating the opportunities for reducing GHG emissions in Ukraine between 2010 and 2030 (NERA et al. 2012). The main output of this work is an investors’ marginal abatement cost curve (MACC) for three policy scenarios – Status Quo (Figure 5), Planned Policies and Enhanced Policies. It should be noted, however, that against the background of recent economic developments in Ukraine, a new study updating the MACC is highly recommended.

The study suggests that, under the policy Status Quo, there is potential to reduce emissions by around 98 M t CO<sub>2</sub>e in 2030 through profitable investments, even without a carbon price or additional climate policies. This abatement potential can be increased to 266 M t CO<sub>2</sub>e including measures with a positive cost. These measures could be supported by carbon markets. Under the Status Quo, industry (with the steel sector playing a major role) is identified as the largest source (about 50 %) of profitable abatement potential.

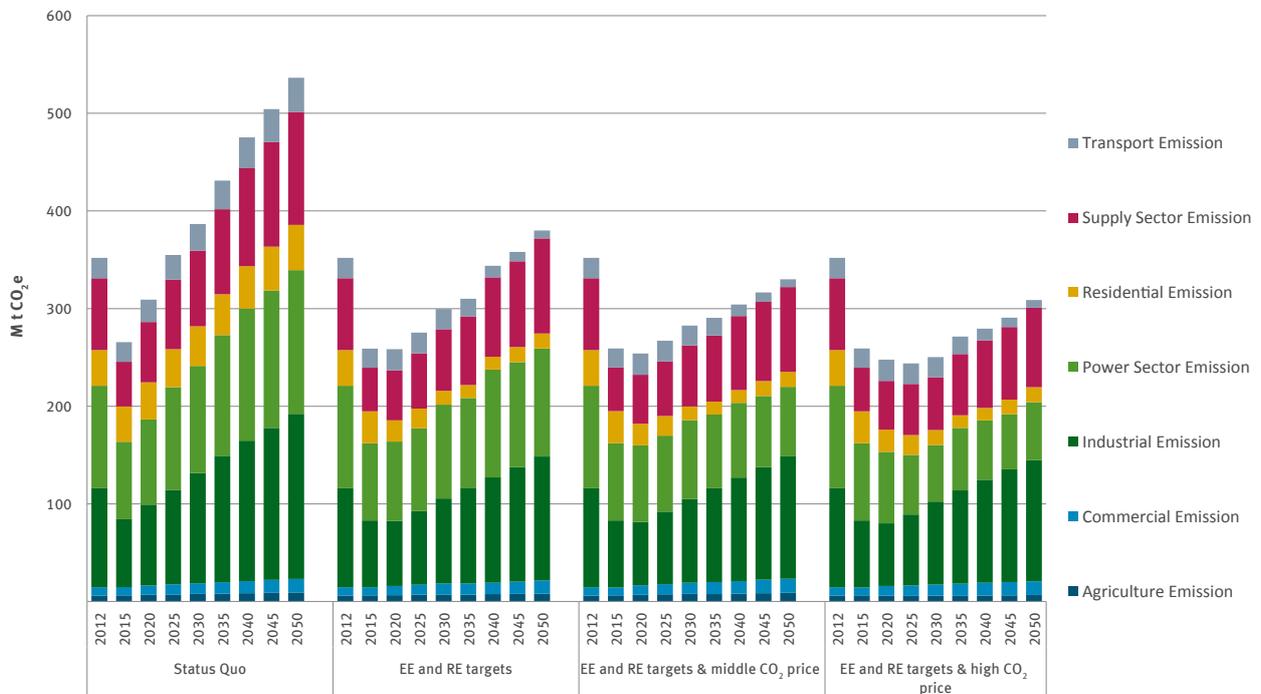


**Notes:** Buildings are R (Residential) or nR (non-Residential)

Source: NERA et al. for EBRD 2012

Figure 5: MACC for Status Quo Policy Scenario (2030)

More recently, USAID conducted a study, which includes a forecast of GHG emissions in Ukraine by sector in various policy scenarios by the year 2050 (USAID 2015). The results in several scenarios are demonstrated in Figure 6. In particular, in the scenario with energy efficiency and renewable energy targets<sup>5</sup> (“EE & RE targets”), GHG could be reduced by 23 % by 2050 compared to the Status Quo scenario. By introducing middle CO<sub>2</sub> prices in addition to energy efficiency and renewable energy targets (“EE & RE targets + CO<sub>2</sub> prices”), this reduction would constitute over 28 %. Finally, by introducing high CO<sub>2</sub> prices (“EE & RE targets + high CO<sub>2</sub> prices”), a reduction of almost 33 % against BAU could be achieved by 2050 (USAID 2015: 64; 68). The power sector and industry see most of the mitigation potential in all scenarios. Substantial emissions reductions are also possible in the residential and transport sector.



Source: USAID 2015

Figure 6: GHG emissions by scenario

In addition, under the project ‘Capacity Building for Low Carbon Growth in Ukraine’ commissioned by the UNDP and supported by the German Ministry for Environment, sectoral analysis focusing on Ukrainian industries with regard to their GHG reduction potential and economic assessment of the proposed domestic ETS were conducted and low carbon development scenarios between 2011-2050 were developed (DIW ECON, 2014). The results illustrated that metal industry has an annual mitigation potential of up to 30 % (27 M t CO<sub>2</sub>e), non-metallic mineral products industry 11 M t CO<sub>2</sub>e and chemical and chemical products at least 1 M t CO<sub>2</sub>e per year respectively.

While providing a good overview of the relative mitigation potential per sector, a cautious attitude towards the validation of these studies should be noted. Considerable uncertainties do exist regarding Ukraine’s emission trajectory and mitigation potential due to the changes in the macroeconomic situation in the last years as described in section 1.

According to Ukraine’s Market Readiness Proposal under the PMR (SEIA, 2014: 68-69), the power sector, district heating, and industrial sectors are considered to be the most suitable for inclusion into an ETS or other market-based instruments. Main reasons are that these sectors comprise mostly easily identifiable large point sources; they are responsible for a significant portion of GHG emissions and offer numerous and largely profitable mitigation opportunities.

5 Along with the targets set in the new Energy Strategy, Ukraine supports the development of renewable energy sources through a feed-in tariff (“Green tariff”), which has been positively assessed by major climate NGOs in terms of triggering GHG emissions reductions (interview with NECU). For more information on the tariff rates and conditions, see <http://zakon4.rada.gov.ua/laws/show/5485-vi> (in Ukrainian).

Finally, they are already subject to many regulatory and reporting requirements and allow for a relatively uncomplicated MRV process. In an interview, a climate policy expert from Ukraine admitted that while most of JI projects were realised in industry, there is a vast potential for mitigation activities in other sectors such as agriculture, forestry and transport, which should be utilised in the future.

Keeping the current country capacities in mind, the next section discusses the framework based on which Ukraine’s readiness to engage with Article 6 is assessed.

## 4 Assessment framework for countries’ readiness to engage with Article 6

This section lists potential participation options for the countries to engage with Article 6 of the Paris Agreement and introduces an assessment framework to analyse the countries’ readiness to participate in the new mechanisms. In the next section, Ukraine’s readiness is discussed in detail based on this methodological framework.

### 4.1 Participation options under Article 6

Article 6 of the Paris Agreement includes several provisions allowing for the use of the international carbon market to support the implementation of NDCs and enable ambition raising. These are defined as ‘Cooperative Approaches’ (discussed in Article 6.2-6.3) and a ‘Mechanism for Sustainable Development and Mitigation’ (discussed in Article 6.4-6.7). We interpret ITMOs as mitigation outcomes realised through any Article 6 approach, and transferred between countries with the objective of NDC achievement of the acquiring country. While the detailed guidance and rules for Article 6 are currently being negotiated, countries as well as experts are reflecting on how to best integrate experiences from previous and existing market related activities in the future mechanisms. Based on existing market experiences, a range of options may exist for countries to transfer mitigation outcomes in the post-Paris market mechanisms.

In Table 6 and the following paragraphs, we outline a set of broad and non-exhaustive options for transferring ITMOs and differentiate if they may fall under Article 6.2 ‘Cooperative Approaches’ or under Article 6.4 ‘Mechanism for Sustainable Development and Mitigation’. These form the basis of the assessment in the next section.

Table 6: Potential non-exhaustive options for ITMO transfers under Article 6

Options for ITMO transfers under Article 6.2 (✓) and Article 6.4 (✓)	
ITMO transfers as a result of <b>linked Emission Trading Schemes</b>	✓
<b>Direct transfers of ITMOs between countries</b>	✓
<b>Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)</b>	✓
<b>Transfers of ITMOs generated from international baseline and crediting instruments</b>	✓

Sources: Authors

**Participation options under Article 6.2** - Article 6.2 encompasses direct cooperation between sovereign states that involves the transfer of ITMOs. Multiple instruments could generate ITMOs under Article 6.2, as long as their generation is consistent with the international guidance that is to be adopted by the COP. Based on currently operational domestic as well as international carbon pricing instruments and the above outlined interpretation of ITMOs, a few broad participation options emerge:

1. *ITMO transfers as a result of linked domestic Emission Trading Schemes (ETs):* Emission permits or corresponding ITMOs are transferred as a result of trades between established ETs from respective jurisdictions through linking their markets.
2. *Direct government-to-government ITMO transfers:* This could take different forms. For instance, emission permits similar to assigned amount units (AAU) in the Kyoto Protocol’s International Emission Trading are transferred as ITMOs.

3. *ITMO transfers as result of (bilateral) baseline and crediting instruments*: These include crediting of emission reductions in non-ETS sectors for the countries with ETSs, or a general crediting approach, or the Joint Crediting Mechanism (JCM) type bilateral crediting approach. Such instruments may operate on project-by-project or sectoral level.

**Participation options under Article 6.4** - Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation which generates emission reduction credits and operates under the authority of the COP. Based on engagement in operational international mechanisms and existing structures (e.g. CDM), participation in the Article 6.4 mechanism can involve, first and foremost, the generation of emission reduction credits and their transfer between countries (and/or obligated entities e.g. in ETSs) towards meeting the acquiring country’s NDC. We assume that emission reduction credits generated under Article 6.4, which are internationally transferred and used by the acquiring country towards its NDC, are also potentially be regarded as ITMOs.

4. *Design options that exist under Article 6.4 are yet to be agreed and include a project or programme based mechanism similar to the CDM/JI approaches; or a sectoral international crediting mechanism in which fixed sectoral baselines/thresholds could be set and credits generated if a lower level of emissions is achieved. Alternatively, credits could be also generated by adopting, quantifying and MRV of GHG-friendly policies in particular sectors or be based on intensity-based baselines e.g. GHG emissions per unit of output.*

## 4.2 Assessment framework for countries’ readiness to engage with Article 6

In the absence of concrete rules on the nature and form of market mechanisms possible under Article 6, such a readiness assessment cannot be based on precise benchmarks. The approach chosen for the assessment is to take stock of the broad preconditions to engage with Article 6, identify support needs early on and provide important insights for ongoing negotiations and further develop modalities for Article 6.

The indicators used in this assessment of ‘engagement readiness’ of countries are, firstly, the enabling conditions for the uptake of Article 6 market instruments (*enabling conditions*); secondly, factors which ensure that the mitigation outcomes used as ITMOs follow principles of robust accounting and environmental integrity desirable under Article 6 (*feasibility of maintaining robust accounting and MRV*) and thirdly, factors related to the ability of the country’s NDC to maintain environmental integrity and strengthen mitigation ambition (*compatibility of the NDC*). These indicators and factors underlying each are outlined in Table 7 and briefly discussed below.

Table 7: Indicators and factors used in readiness assessment

Indicators	Factors considered in the assessment
<i>Enabling conditions</i>	Availability of instruments
	Political will
<i>Feasibility of maintaining robust accounting and MRV</i>	Accounting capacity (national emissions inventory, project based accounting)
	Registry experience
	MRV systems
	Implementation capacities
<i>Compatibility of the NDC</i>	Scope of NDC
	Clarity of NDC
	Nature of NDC
	NDC ambition

Sources: Authors

**Enabling conditions** – We assume that prior experience and availability of instruments such as ETS, crediting instruments and bilateral transfers play a facilitative role in Article 6 uptake. Furthermore, the Paris Agreement has redefined the paradigm for international climate policy as unlike the KP, all Parties have taken up some form of contributions towards global mitigation efforts.

As all Parties are free to buy or sell ITMOs, market instruments can have an impact on (and be impacted by) domestic mitigation efforts. Hence, political will of Parties to pursue domestic or international instruments, facilitate their uptake by stakeholders, and ensure quality of ITMOs will be critical in the post-Paris world.

**Feasibility of maintaining robust accounting and MRV** – Article 6 instruments would require strong domestic systems to meet the requirements of internationally agreed guidance and rules to measure, monitor, report and verify the ITMOs for Article 6.2 and Article 6.4 respectively, assuming the two have comparable stringency. This includes, firstly, experiences of a country with economy wide emission accounting, e.g. in the form of national emissions inventories, MRV system, and registry experience; and secondly, experiences with accounting approaches for specific sectors and mitigation activities. Additionally, the presence of an appropriate institutional setup, e.g. a coordinating body, would be critical to maintain robust accounting and MRV. Further, support from and implementation capacity of state actors and other stakeholders (e.g. businesses, NGOs, and state agencies) is important to maintain robustness of accounting and MRV provisions agreed in Paris.

**Compatibility of the NDC** – Lastly, the relationship of ITMOs with NDCs will be critical for ensuring environmental integrity of Article 6 instruments and strengthening mitigation ambition of the Paris Agreement. Considering the broad range and diversity of NDCs, among others, aspects such as the nature (conditional or unconditional), type (intensity based, absolute, non-quantified) and scope (sectoral, actions only, economy wide) of the NDC, as well as other elements of quantifiability such as clear emission trajectories and clarity of underlying actions are important. Moreover, ambition of the NDC could influence the generation of genuine emission reduction credits ('hot air').

The next section discusses the Ukrainian case in detail using the analytical lens provided by the above defined framework.

## 5 Ukraine's readiness to engage with market options under Article 6

The modalities of Article 6, which are currently under development, may present challenges for participating countries to ensure environmental integrity, and impact the countries' motivation and capacities to participate in future international carbon markets. These are often interlinked and have implications on how different countries choose their pathways to operationalise Article 6. Based on the background of Ukraine's experience with market mechanisms and existing market related capacities, the next paragraphs assess and discuss Ukraine's readiness to engage with market options under Article 6, by applying the framework of three readiness indicators as defined in the previous section<sup>6</sup>.

### 5.1 Enabling conditions

Ukraine has gained experience with market mechanisms that can be built upon in the future. A lot of work has been focused on the development of an MRV system, and once it is finalised and runs smoothly, the country may move ahead with preparing and introducing an ETS, which is embedded in its domestic and international commitments. The Association Agreement with the EU is one of the factors that catalyse the establishment of Ukraine's ETS. Once the domestic ETS is functioning, it could be one of the ways for the country to engage with Article 6.2. However, if Ukraine were to link its ETS with one or several other systems, it could take considerable time for negotiating and aligning design elements.

At the same time, as described in section 2.1, Ukraine has gained wide-ranging experience with crediting instruments. It implemented the largest number of JI projects and accumulated experience of using various types of GIS activity such as 'hard' as well as 'soft' greening. At the current level of capacity, a crediting instrument based on past experience with JI, therefore, seems to be more feasible for Ukraine than engagement with Article 6 through ETS linkage, at least in the short term. Such a crediting instrument could apply to both Article 6.2 and 6.4, subject to different guidance / rules, modalities and procedures and different governance (these are currently under negotiation).

<sup>6</sup> Given the high uncertainty of the Article 6 negotiations and the fact that it will take considerable time (at least till COP 24 in 2018) to negotiate the exact design details of the new mechanisms, this study can only provide limited analysis with regard to potential options of the country under Article 6 of the Paris Agreement. Country representatives stress that it is challenging to evaluate the readiness of Ukraine to implement Article 6 as long as there are no agreed international rules to make it operational.

Not only project and programme based but also sectoral mechanisms could be an option for Ukraine, though based on existing experience, project based mechanisms may be easier to implement. Participation in the Joint Crediting Mechanism (JCM) is also conceivable, provided that it is eligible under Article 6.

Additionally, direct government-to-government ITMO transfers under Article 6.2 may build upon the accumulated experience with GIS. It is worth noting, however, that Article 6.2 is expected to have more international guidance on accounting, environmental integrity and transparency issues, while for GIS, these were self-defined by the seller and buyer countries. Therefore, more effort could be required to implement mechanisms under Article 6.2.

Ukraine’s government has already expressed the intention to participate in the future international market mechanisms under Article 6 in the NDC as well as SBSTA submissions. Currently, the MENR does not show stronger preference for either Article 6.2 or 6.4<sup>7</sup>. Interviews have revealed that domestic political support for the development of market mechanisms from the Parliament, the top level of the government as well as the general public are not yet strong enough. Currently, it is not among the highest policy priorities. A strategic long-term vision on climate change as a key political and security issue at all levels of government would foster Ukraine’s participation in markets. International support for MRV and ETS, which is provided by a number of international donors, is considered to be a strong external catalyser for the development of market instruments.

Whilst enabling conditions exist, effective implementation of Article 6 instruments requires, among others, strong domestic systems to measure, monitor, report and verify mitigation outcomes that will be transferred internationally. These are discussed in the following subsection.

**Table 8: Summary of the indicator ‘Enabling conditions’**

Indicator	Factors	Current situation
Enabling conditions	Availability of instruments	<ul style="list-style-type: none"> <li>▶ Planned ETS (ongoing work on MRV; commitment to ETS development anchored in national climate policy documents; ETS to be introduced after MRV system is finalised)</li> <li>▶ Experience with JI and GIS</li> </ul>
	Political will	<ul style="list-style-type: none"> <li>▶ Willingness to participate in Art. 6 expressed in NDC and SBSTA submissions; however, domestic high-level political support for market mechanisms could be stronger</li> <li>▶ Association Agreement with EU is a strong incentive to introduce an ETS; support by international partners for MRV and ETS</li> </ul>

Sources: Authors’ assessment

## 5.2 Feasibility to maintain robust accounting and MRV

Ukraine has been developing the National Emissions Inventory and reports to the UNFCCC on an annual basis. The greenhouse gas registry was established and is maintained. Still, a temporary suspension from KP market mechanisms happened in the past due to reporting flaws and occasional non-compliance with deadlines, which indicates that more resources may be needed to ensure continuous robust accounting in order to be better prepared for Article 6 implementation. The fact that the country managed to regain reporting compliance under UNFCCC in both cases so far demonstrates that it has capacities to provide high-quality reporting.

Administrative capacities are established in the form of a specialised Division of Registry Maintenance and Emissions Trading within the Department of Climate Change, Atmosphere Protection and Ozone Layer Protection under the MENR. Given its current role, the MENR could be in charge of the implementation and management of the mechanisms under Article 6. The analysis has, however, illustrated large potential for strengthening the current capacities e.g. through the creation of a separate body focusing on climate issues (other possible forms include a regional hub or a public-private partnership) or increasing technical staff under the MENR.

<sup>7</sup> Based on Ukraine’s position that Article 6.2, 6.4 and 6.8 have to be regarded in a holistic approach, the country could also use certain types of outcomes that could result from/be common for all of these mechanisms, in case they are eligible under Article 6 (see e.g. UNFCCC 2017b, which refers to an “integral approach for operationalization of Article 6 provisions stipulated in paras 6.2, 6.4 and 6.8”).

At the level of private sector stakeholders, the analysis indicates a relatively high interest in market mechanisms, which is primarily based on experience with JI and GIS. However, interviews have shown that the debate on market mechanisms and ETS in particular has so far been concentrated in relatively narrow circles surrounding the MENR, and a broader stakeholder engagement (e.g. of the Parliament, the Ministry of Economic Development and Trade, and private sector) could further support the implementation of Article 6.

Smooth implementation of Article 6 at the level of private stakeholders would to a large extent depend on the ability to perform high-quality MRV measures. Ukraine is actively working on its MRV system, and many previous MRV gaps are currently being addressed, among others by the PMR project. Finalising and ensuring flawless operation of an MRV system will be a crucial step towards ensuring robust accounting in the context of future market mechanisms.

Last but not least, a critical determinant of effectiveness of mitigation outcomes is the presence of domestic systems, which can transparently track ITMOs generated and transferred to avoid double accounting. These systems may be the same or differ for Article 6.2 and 6.4. Cames et al. (2016) point to a range of design possibilities for Article 6.2 transparency procedures - from reporting adjustments under the Paris transparency framework (Article 13) to developing registries for recording transfers. Similarly, Article 6.4 may also require an international register like the one under the CDM. Whichever design approach is ultimately agreed upon by international negotiation, transparent documentation systems at the domestic level will be critical for its effective enforcement. Ukraine has substantial registry experience based on the development and maintenance of the National Electronic Registry of Anthropogenic Emissions and Absorption of Greenhouse Gases.

**Table 9: Summary of the indicator ‘Feasibility of maintaining robust accounting and MRV’**

Indicator	Factors	Current situation
Feasibility of maintaining robust accounting and MRV	Implementation capacity	<ul style="list-style-type: none"> <li>▶ MENR is acknowledged as a coordinating institution but additional personnel and technical resources may be required</li> <li>▶ Relatively high interest among private sector stakeholders but their involvement could be enhanced</li> <li>▶ Capacity at the level of private stakeholders depends on the ability to do high-quality MRV (e.g. at installation level)</li> <li>▶ Development of market mechanisms could be supported more effectively by bodies other than the MENR (e.g. involving Parliament, other governmental bodies)</li> </ul>
	Accounting capacity	<ul style="list-style-type: none"> <li>▶ Established accounting procedures, developed National Inventory, annual reporting of national GHG emissions</li> <li>▶ Managed to restore compliance after temporary suspension from the use of KP mechanisms due to reporting issues</li> </ul>
	MRV system	<ul style="list-style-type: none"> <li>▶ Ongoing active development of the MRV system (e.g. through PMR support)</li> </ul>
	Registry experience	<ul style="list-style-type: none"> <li>▶ Registry established and maintained</li> </ul>

Sources: Authors' assessment

### 5.3 Compatibility of NDC

Clarity in the scope of activities covered by the NDC is paramount towards ensuring environmental integrity of Article 6 (Cames et al. 2016). Having a clear and quantifiable target, including transparently defined baseline emissions against which the target is set are critical for ensuring the quality of mitigation outcomes. Ukraine has an economy wide NDC that puts forward a quantifiable absolute emissions reduction target, which would be more suitable for the use of both Article 6.2 and 6.4 mechanisms compared to less or non-quantifiable types of NDC targets.

Ukraine has a single-year target, i.e. it does not define any obligations during the period leading up to the target year. Single year targets can pose specific accounting challenges for ITMO transfers. One key challenge is the lack of obligation in the period leading up to the target year. As single year targets do not define any intermediate milestones, the seller country can transfer ITMOs without any limitations in the vintages before the target year i.e. they have a higher potential to generate ‘hot-air’.

In a similar manner, a buyer country with a single year-target may need to buy less ITMOs, compared to those with specific obligations for intermediate years. Additionally, different target types can make the comparability between NDCs difficult and make the international accounting complicated. Ukraine would, therefore, need to develop or disclose the emission trajectory of its NDC pledge in the near future.

In addition, ambition of a NDC can be a key determinant to the quality of generated ITMOs. The term ‘quality’ is used here in the context of the genuineness of a mitigation outcome being used for international transfers. A less ambitious NDC may provide more reduction credits for the same effort, for instance, by inflating the baseline (i.e. generate ‘hot air’). While an assessment of the ambitiousness of the NDC is beyond the scope of this research, an independent policy assessment by Climate Action Tracker rates the ambition and fairness of Ukraine’s NDC as “critically insufficient” (Climate Analytics et al. 2017), and domestic NGOs (interview with “Ecoaction”) also consider that its ambition could be further enhanced. Still, the intention to revise the NDC and the approval of post-2020 socio-economic development strategies have been emphasised by the current NDC. Some of these strategies are already adopted, e.g. the recently announced Energy Strategy 2035. A substantial cost-effective mitigation potential existing primarily in the industry and power sectors as well as broad mitigation opportunities in other sectors demonstrate that raising NDC ambition is possible.

**Table 10: Summary of the indicator ‘Compatibility of NDC’**

Indicator	Factors	Current situation
Compatibility of NDC	Scope of NDC and target type	<ul style="list-style-type: none"> <li>▶ Economy-wide, absolute reduction target (positive for the use of market mechanisms)</li> <li>▶ Single year target (presenting a multi-year trajectory would be more beneficial)</li> </ul>
	Clarity of NDC	<ul style="list-style-type: none"> <li>▶ NDC defines clear, quantifiable targets</li> <li>▶ Includes reference to several policies for meeting the target (e.g. ETS establishment)</li> <li>▶ Emissions trajectory missing</li> </ul>
	Nature of NDC	▶ Unconditional on international support
	NDC ambition	▶ Insufficient as per some researchers (CAT assessment)
	Coverage of GHGs	▶ CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, SF <sub>6</sub> , NF <sub>3</sub>

Sources: Authors’ assessment

## 5.4 Engagement with Article 6 options

Table 11 summarises Ukraine’s readiness to engage in various market options under Article 6. In general, the whole range of preliminary options listed in the subsection 4.1 (Table 6) could be used by Ukraine in the future. Still, given the current level of experience and capacity, crediting instruments as well as direct government-to-government ITMO transfers seem to be most feasible in the short term. In the long term, engagement through an ETS could also be viable, provided that the underlying MRV system is operating flawlessly and the ETS is up and running.

Allocating more personnel resources to the development of market mechanisms as well as to the UNFCCC reporting could enhance the country’s readiness to engage in Article 6 options. Apart from that, raising the level of ambition of the NDC is of importance to avoid the risks of potential restrictions from the use of market mechanisms (in case there are any). Finally, stronger domestic high-level political support and broader stakeholder engagement are factors that could further foster participation of the country in the new mechanisms.

Table 11: Potential engagement options for Ukraine based on the readiness assessment

Options for ITMO transfers under Article 6.2 (✓) and Article 6.4 (✓)	Potential engagement options
ITMO transfers between linked Emission Trading Schemes <sup>8</sup>	✓
Direct transfers of ITMOs between countries	✓
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	✓
Transfers of ITMOs generated from international baseline and crediting instruments	✓

Sources: Authors

## 6 Conclusions and recommendations

Germany has been a central actor in fostering international carbon markets in the past, and continues to hold a keen interest in supporting development of rule-based and well-functioning carbon markets under the Paris Agreement. In the post-Paris context, however, the question arises in how far existing German cooperation in the field of carbon markets needs to be readjusted and further developed in line with the rules and regulations to be established under Article 6, without compromising the interests of Germany and its partner countries. Building on the assessment presented in section 5, recommendations have been developed on the prospects for future German cooperation with Ukraine to support activities related to carbon market instruments.

### Prospects for future cooperation between Germany and Ukraine

The assessment carried out in section 5 points towards certain gaps and needs where Germany's cooperation can support Ukraine in getting ready for Article 6. Some of these are related to the implementation of all Article 6 options, while others are more option-specific.

#### 6.1 Recommendations related to all Article 6 options

**Create a specific checklist on a sufficient, Art. 6 compatible MRV system.** To begin with, the major prerequisite for the smooth functioning of an ETS and any other market mechanisms is a robust MRV system, which requires both administrative capacity of the government and implementation capacity of the private sector. According to the representatives of the Ukrainian government and NGOs, international support for MRV that is currently being provided (primarily by the PMR) is addressing the existing capacity gaps well (i.e. assistance in drafting MRV legislation, piloting MRV measures, providing trainings for operators, establishing MRV-related infrastructure). At the same time, once the international rules and guidance for Article 6 are established, new support activities could focus on creating a specific checklist to make sure that the MRV system is sufficient and compatible with Article 6 requirements, based on which further gaps and support needs may be identified.

**Enhance the dialogue with broader stakeholders by engaging them in events and discussions on topics related to market mechanisms and the perspectives of Article 6.** Secondly, the analysis has illustrated that more emphasis could be put on ensuring greater involvement of broader public and private sector actors and stakeholders (e.g. the Parliament, the Ministry of Energy and Coal Mining or the Ministry of Economic Development and Trade and the private sector) in the discussions around policy making and implementation of MRV and market mechanisms. Future bilateral and international cooperation activities could foster the dialogue with broader stakeholders by engaging them in events and discussions on topics related to market mechanisms in general and the perspectives of Article 6 in particular.

**Provide support for the creation of a body specialising in climate policy issues.** At the same time, the study has demonstrated that strengthening the resources of the MENR by creating a specialised climate policy institution (which could be a governmental structure, public-private partnership or regional institution for Ukraine and neighbouring/partner countries) could help better coordinate donor activities and cross-ministerial interaction.

<sup>8</sup> Once the ETS in Ukraine is established, well-functioning and ready to link with ETSs of other jurisdictions.

Political, technical and financial support for the creation of such a specialised body as well as the provision of targeted activities to enhance its capacity once the institution is established would increase Ukraine's readiness to implement future market instruments.

**Conduct studies on the opportunities for raising NDC ambition.** Another overarching factor that could substantially foster the use of all Article 6 options in Ukraine is raising its NDC ambition. To this end, detailed studies assessing the current mitigation potential of multiple sectors and the economy as a whole as well as studies on how to most effectively realise the mitigation potential to increase the level of ambition are recommended. Updating the understanding of sector-specific mitigation potential, measures, and cost may also be required.

**Dedicate more resources to accounting and strengthen high-level political support.** Domestically, dedicating more resources to deliver compliance with the UNFCCC reporting requirements could help ensure continuous robust accounting. Finally, building strong high-level political support for market mechanisms could help Ukraine further pave the way for using various Article 6 options.

## 6.2 Option-specific recommendations

**Organise a technical exchange between Ukraine and partners on the design of an ETS.** If Ukraine were to choose the path of engaging in Article 6.2 with a future domestic ETS, the key need would be technical and financial support for the design, introduction and operation of the ETS. One possible way is to organise detailed and demand-driven, tailor-made technical exchange with countries and subnational jurisdictions where ETSs are already operational. The issue of linking ETSs would require additional technical support and political coordination. Direct international support for the establishment of an ETS in Ukraine is planned and partly being provided, but it requires time to assess the effectiveness of this support.

**Conduct studies focusing on the potential and challenges for using international crediting mechanisms and sectoral crediting in particular.** What is more, to foster Ukraine's possible participation in international crediting mechanisms, studies specifically focusing on the potential and challenges for using these mechanisms would be required. Special focus could be on analysing the prospects for sectoral crediting, which would be a new focal area for Ukraine. Last but not least, Ukraine could strengthen its own experience with market instruments by engaging in technical knowledge exchange with countries that have had experience of using mechanisms of other kinds (e.g. Joint Crediting Mechanism).

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