



The European Union – Kazakhstan Sustainable Energy Days

International Conference Sustainable energy in Kazakhstan: prospects and challenges

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International Mechanisms to contribute to the mitigation of greenhouse gas emissions – opportunities for sustainable energy projects

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Agenda



- 1 General information on Climate Finance
- 2 Brief information on Voluntary Carbon Market
- 3 Market prices of Carbon Credits
- 4 Requirements to the projects applying for Carbon Credits
- 5 Additional revenues due to the Carbon Credits

General information on Climate Finance

- **Climate finance** refers to local, national or transnational financing - drawn from public, private and alternative sources of financing - that seeks to support mitigation and adaptation actions that will address climate change
- **The United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol (KP), and the Paris Agreement (PA),** call for financial assistance from Parties with more resources to those less endowed and more vulnerable

General information on Climate Finance (2)

- Developed country Parties shall provide financial resources to assist developing country Parties in implementing the Convention
- To facilitate this, the Convention established a **Financial Mechanism** to provide funds to developing country Parties. The financial mechanism also serves KP and PA
- Operating Entities of the Financial Mechanism:
 - The Global Environment Facility (GEF) - since 1994
 - The Green Climate Fund (GCF) – since 2011

General information on Climate Finance (3)

- **Market and Non-Market Mechanisms to promote climate change mitigation**
 - **In Kyoto Protocol** three market mechanisms are considered:
 - ✓ Emissions trading - has led to a growing number of emissions markets in countries around the world, e.g., the European Union Emissions Trading System (EUETS)
 - ✓ Clean Development Mechanism (CDM)
 - ❖ Eligible CA countries: Uzbekistan (16 projects registered), Kyrgyzstan (0), Tajikistan (0), Turkmenistan (0)
 - ✓ Joint Implementation (JI)

General information on Climate Finance (4)

- **Clean Development Mechanism (CDM) in numbers** (as at 31 May 2023):
 - 7,843 CDM project activities registered
 - 363 programmes of activities (PoAs) registered
 - 2,337,571,050 certified emission reductions (CERs) issued for CDM project activities
 - 64,464,196 CERs issued for PoAs
 - Currently, Voluntary cancellation of Certified Emission Reductions (CERs) is allowed - this gives access to the voluntary market
 - Approximately 7.8 million CERs have been cancelled until October 2022

General information on Climate Finance (5)

- **Joint Implementation (JI) in numbers** (according to the last report of the meeting of the JI Supervisory Committee - on 14 September 2022):
 - 332 project design documents (PDDs) and 1 programme of activities design document have been published on the UNFCCC JI website
 - 129 verifications have been published

General information on Climate Finance (6)

- **The Paris Agreement** considers both, market and non-market mechanisms
 - Article 6: to create a new market mechanism, that should be built drawing on the lessons from what went before, such as the CDM and JI
 - Framework for non-market mechanism should be agreed. It will focus on cooperation on climate policy, it could include fiscal measures, such as putting a price on carbon or applying taxes to discourage emissions

General information on Climate Finance (7)

- **The Voluntary Carbon Market**

- The voluntary carbon market is a market for offsetting GHG emissions by paying for the reduction of emissions from projects
- The voluntary carbon market is an alternative to the global climate deal
- It allows companies and private individuals to buy offsets to reduce their emissions



BRIEF INFORMATION ON VOLUNTARY CARBON MARKET



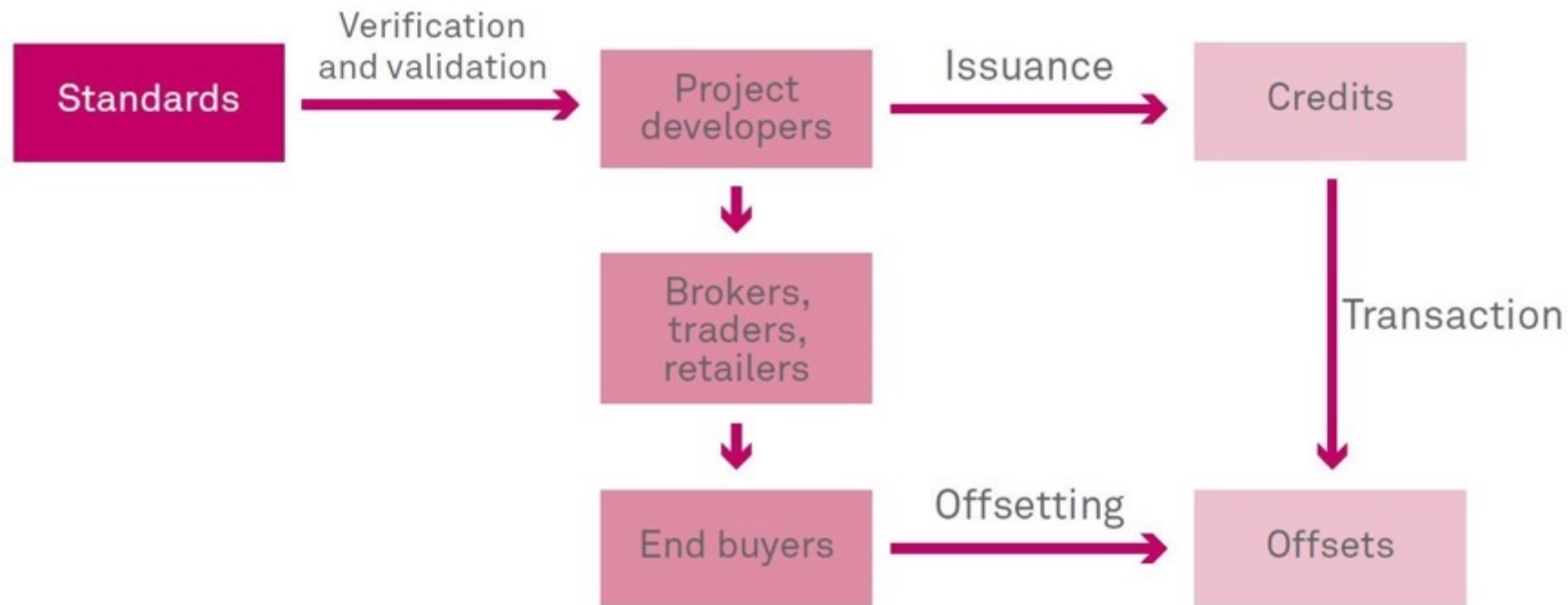
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Brief information on Voluntary Carbon Market

- **In Voluntary Carbon Market:**
 - Carbon credits are typically priced and sold by the market providers themselves
 - Carbon credit, representing one metric tonne of carbon dioxide-equivalent reduced or sequestered, is produced by a third-party verified project

Brief information on Voluntary Carbon Market (2)

- Structure of the Voluntary Carbon Market:



Source: S&P Global Platts

Brief information on Voluntary Carbon Market (3)

- **Structure of the Voluntary Carbon Market:**

- Project developers - set up the projects issuing carbon credits
- End buyers - companies that have committed to offset part or all of their GHG emissions
- Retail traders - purchase carbon credits directly from the supplier, bundle those credits, and sell those bundles to the end buyers
- Brokers - buy carbon credits from a retailer trader and market them to an end buyer
- Standards - organizations, which certify that a particular project meets its stated objectives and its stated volume of emissions. For each type of projects, there are methodologies, or requirements developed

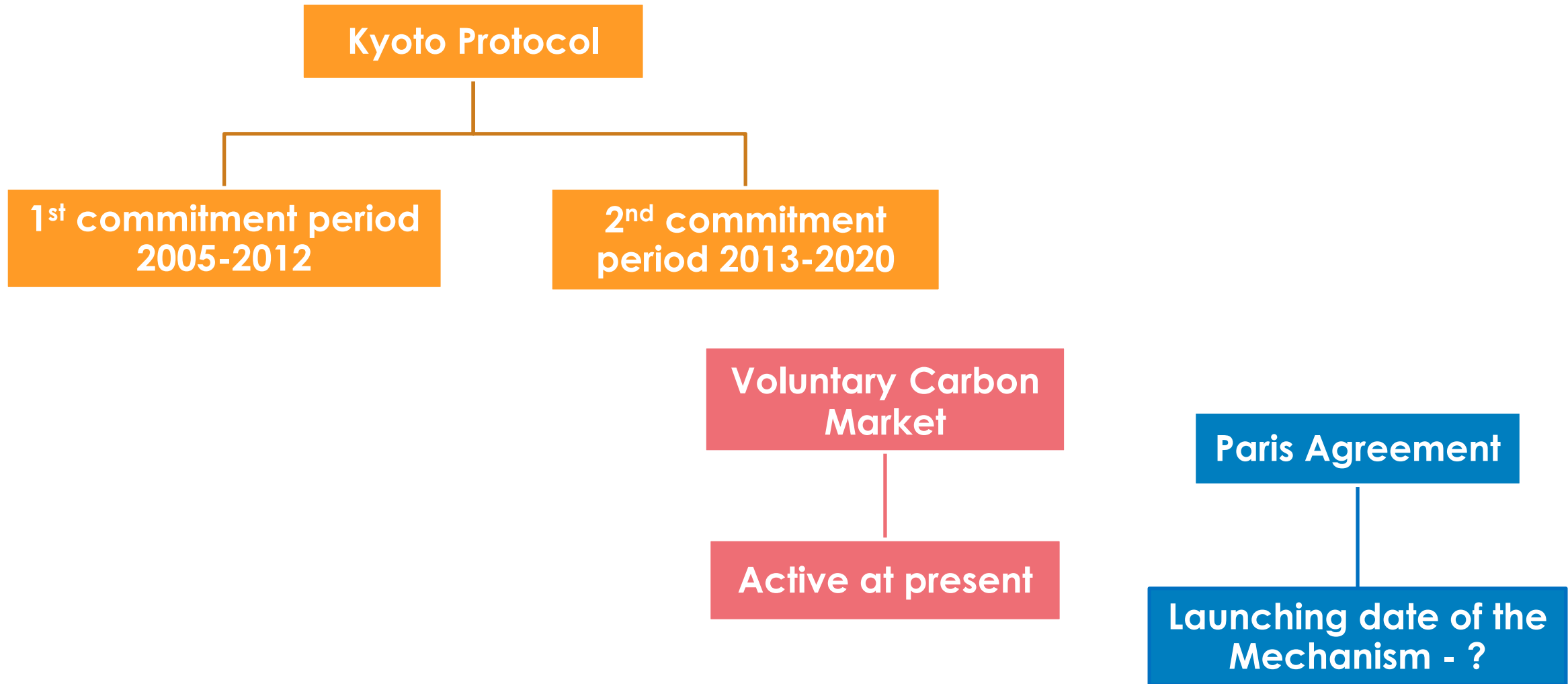


MARKET PRICES OF CARBON CREDITS



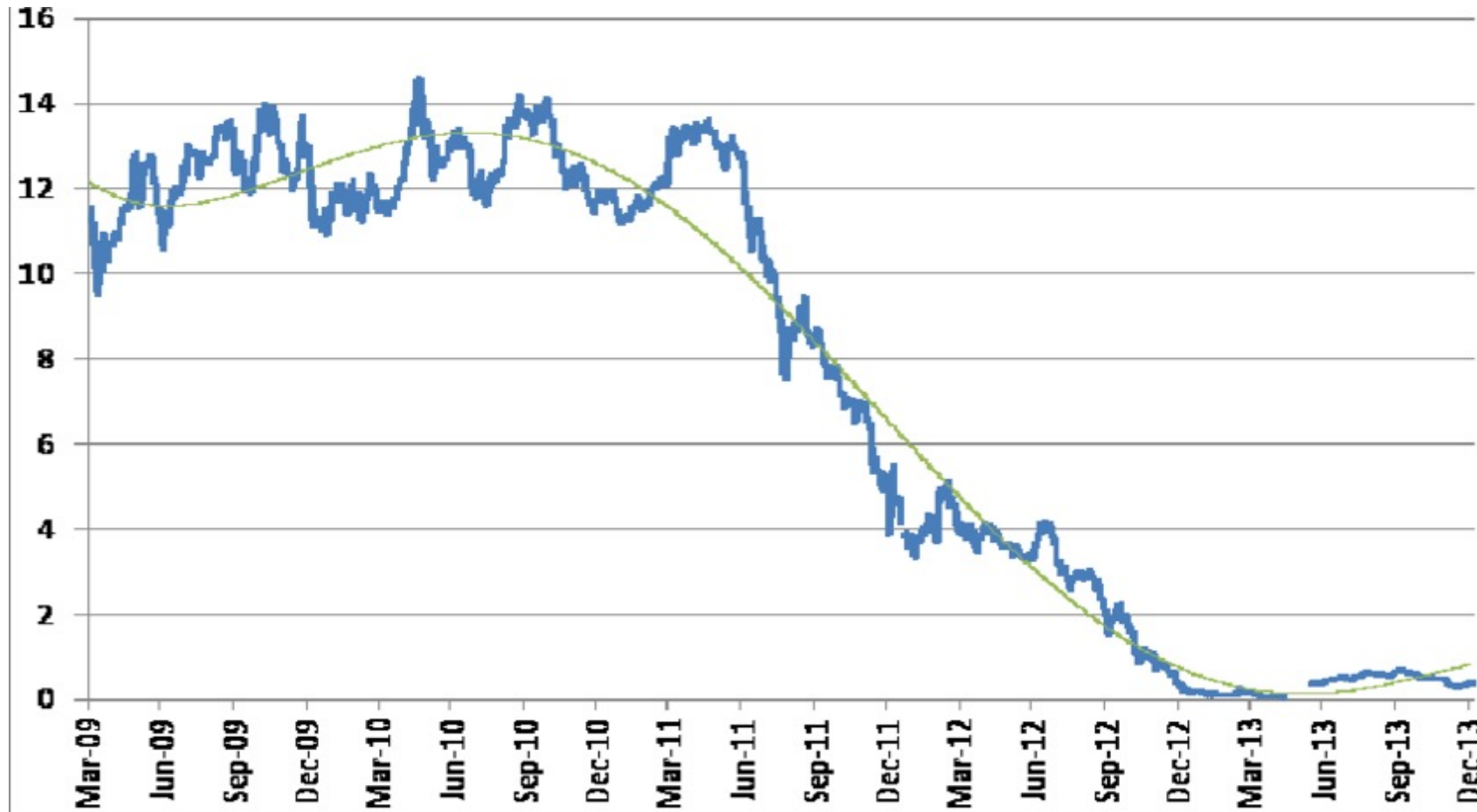
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Market prices of Carbon Credits



Market prices of Carbon Credits (2)

Historical Prices of CERs, USD

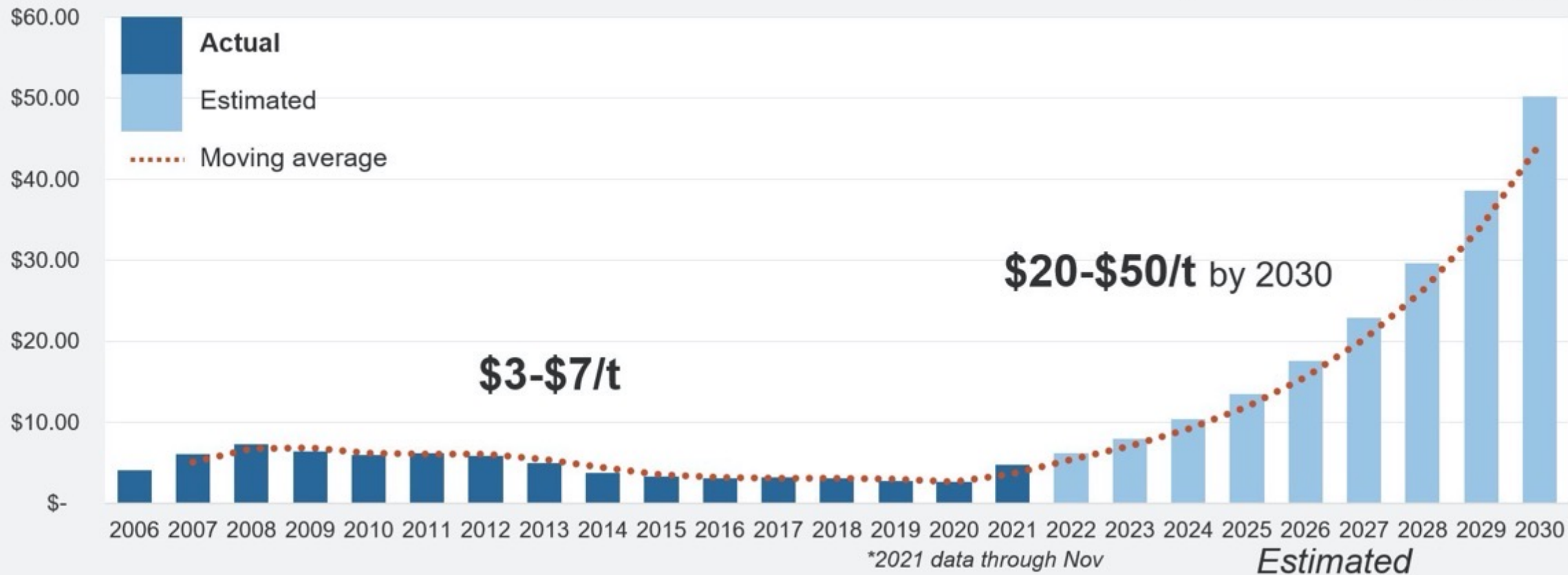


Source: https://www.researchgate.net/figure/Certified-Emission-Reductions-CER-price-development-between-2009-2013-60_fig2_286001003

Market prices of Carbon Credits (3)

Voluntary Credit Prices (US\$/mt CO_{2eq})

CONTEXT



Source: <https://decode6.org/articles/carbon-credits-priced-and-sold/>



REQUIREMENTS TO THE PROJECTS APPLYING FOR CARBON CREDITS

Requirements to the projects applying for Carbon Credits

- **Requirement: To meet the standards**
 - Gold Standard (GS) – projects are performed in line with the technical requirements that have been defined by UNFCCC. In order to generate Voluntary Emission Reduction Units (VERs), every project needs to be validated and verified by an entity that shall be accredited by UNFCCC
 - The Verified Carbon Standard (VCS) Program is the world's most widely used greenhouse gas crediting program

Requirements to the projects applying for Carbon Credits (2)

- **Requirements of standards:**
 - Project Document
 - ✓ Demonstration of additionality
 - ✓ Baseline and Monitoring Methodology
 - Validation and verification



ADDITIONAL REVENUES DUE TO THE CARBON CREDITS

Additional revenues due to the Carbon Credits

- For the grid-connected Renewable Energy projects, as well as Energy Efficiency projects that generate energy (electricity) savings:

$$ER = GE * EF$$

ER – Emission reductions;

GE – Electricity generated (by RE power plants) or saved

EF – Electricity grid Emission Factor (t CO₂ / MWh)

Additional revenues due to the Carbon Credits (2)

- Emission Factor of Electricity System of Kazakhstan:**

Energy Zone	Operating Margin Emission Factor, † CO ₂ / MWh	Build Margin Emission Factor, † CO ₂ / MWh	Combined Margin Emission Factor, † CO ₂ / MWh	
			For wind and solar projects	For other projects
North	1.0198	1.2178	1.0693	1.1188
South	0.5608	0.6409	0.5809	0.6009
West	0.8592	0.7749	0.8382	0.8171
Kazakhstan	0.9381	0.9190	0.9333	0.9285

Emission Factor calculated in accordance with “Methodological Tool to calculate the emission factor for an electricity system”

<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

Additional revenues due to the Carbon Credits (3)

- **Potential revenues due to the generation of 1 kWh of electricity**

	Wind	Solar	Hydro	Bio
Starting auction ceiling prices for 2021, US cents/kWh	4.90	3.90	3.50	7.40
EF, kg CO ₂ / kWh	0.9333	0.9333	0.9285	0.9285
Price of Carbon Credit, USD				
Optimistic scenario	2.00	2.00	2.00	2.00
Pessimistic scenario	0.60	0.60	0.60	0.60
Revenue, US Cents / kWh				
Optimistic scenario	0.187	0.187	0.186	0.186
Pessimistic scenario	0.056	0.056	0.056	0.056
“Share” of Carbon Credits, %				
Optimistic scenario	3.81%	4.79%	5.31%	2.51%
Pessimistic scenario	1.14%	1.44%	1.59%	0.75%

**THANK YOU
FOR YOUR
ATTENTION!**

