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Sustainable Energy Connectivity in Central Asia

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International Conference
Sustainable energy in Kyrgyzstan: prospects and challenges

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Climate finance mechanisms – opportunities and limitations in promoting 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

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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

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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

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General information on Climate Finance (3)

- **Market and Non-Market Mechanisms to promote climate change mitigation**
    - **The Kyoto Protocol** created three market mechanisms
        - ✓ 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)
        - ✓ Joint Implementation (JI)

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General information on Climate Finance (4)

- **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

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General information on Climate Finance (5)

- **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

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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

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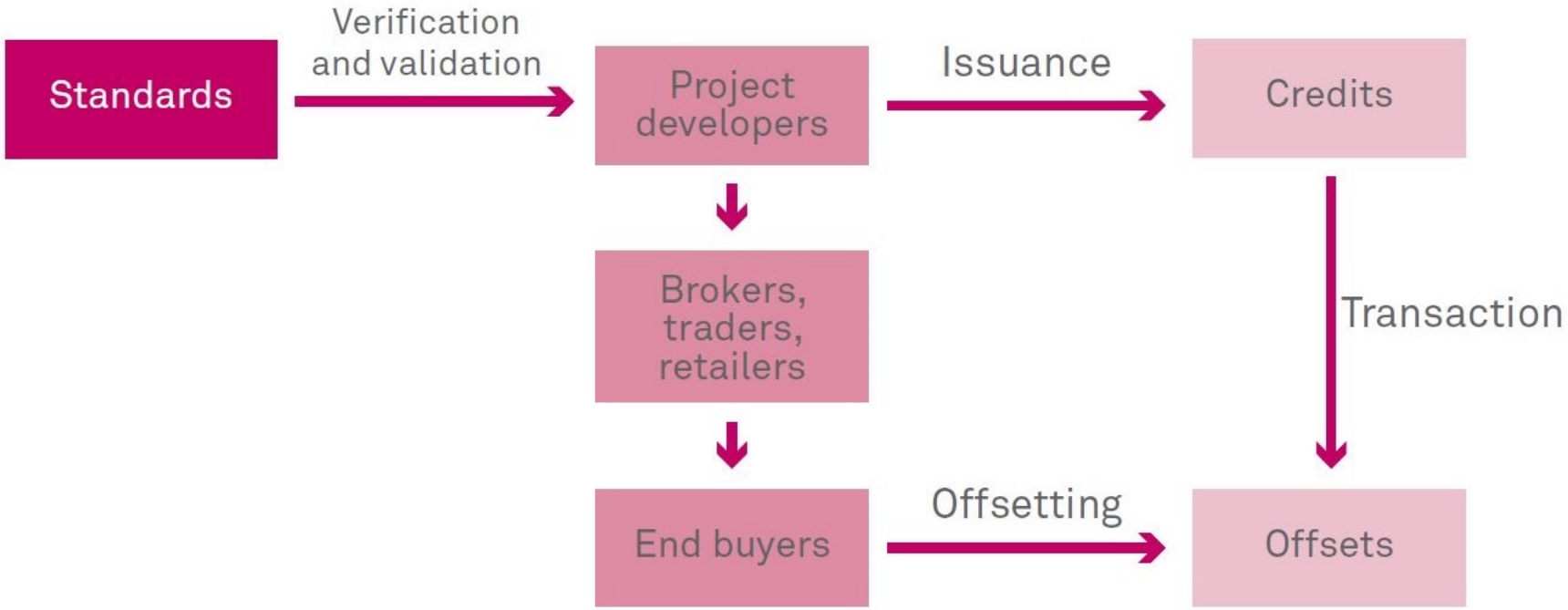
Brief information on Voluntary Carbon Market (2)

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



Source: S&P Global Platts

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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

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MARKET PRICES OF CARBON CREDITS

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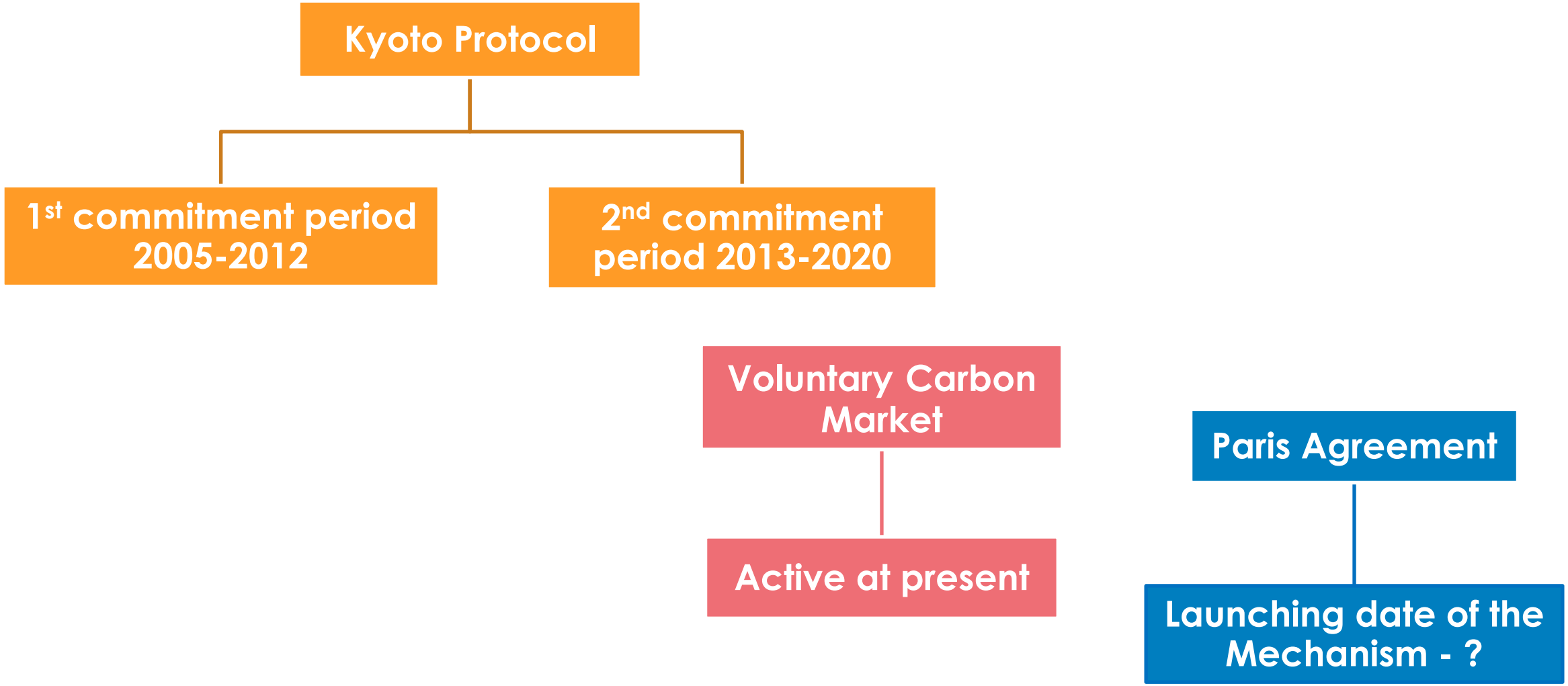
Market prices of Carbon Credits



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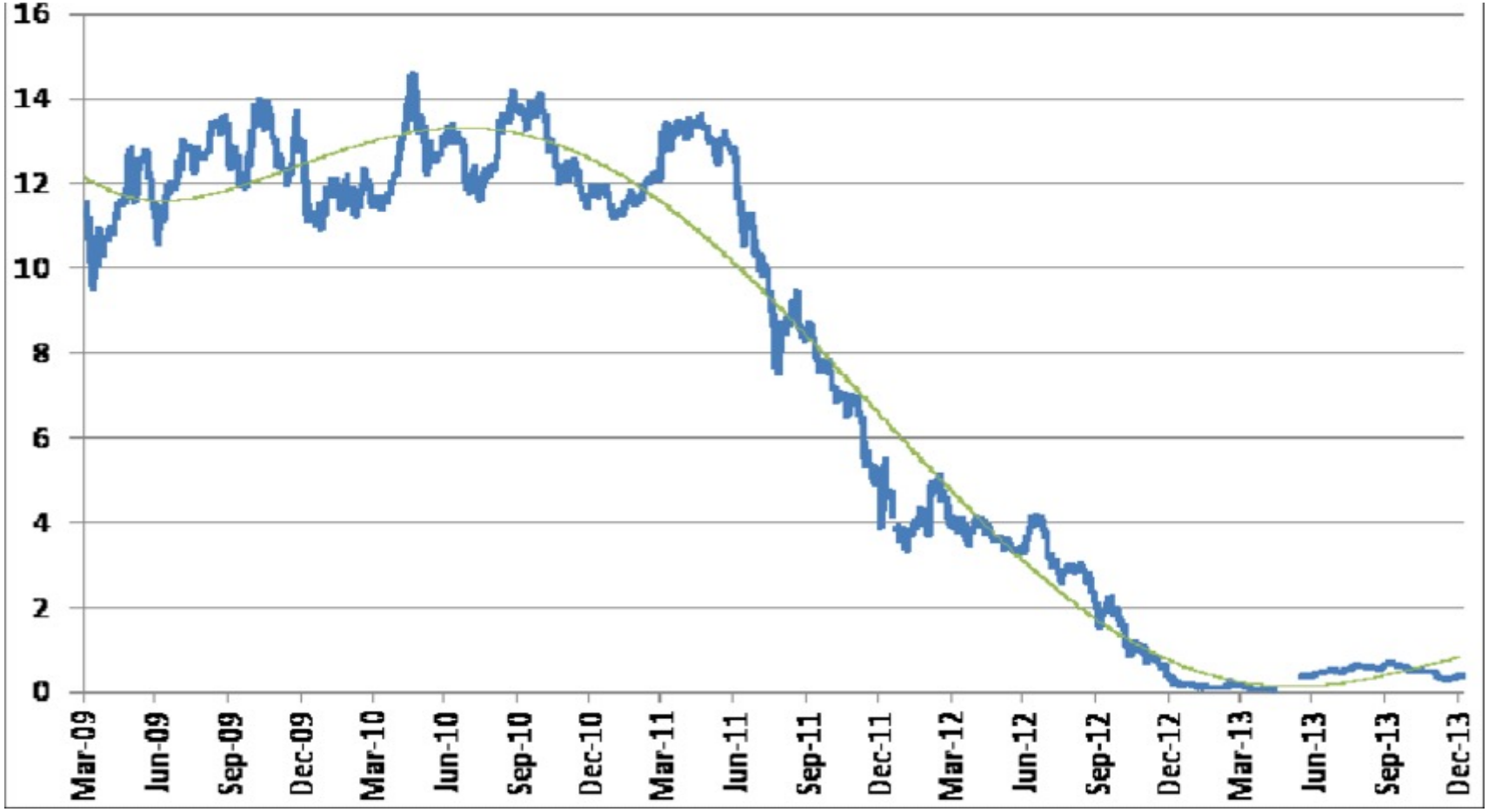
Market prices of Carbon Credits (2)

Historical Prices of Certified Emissions Reductions (CERs), USD



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

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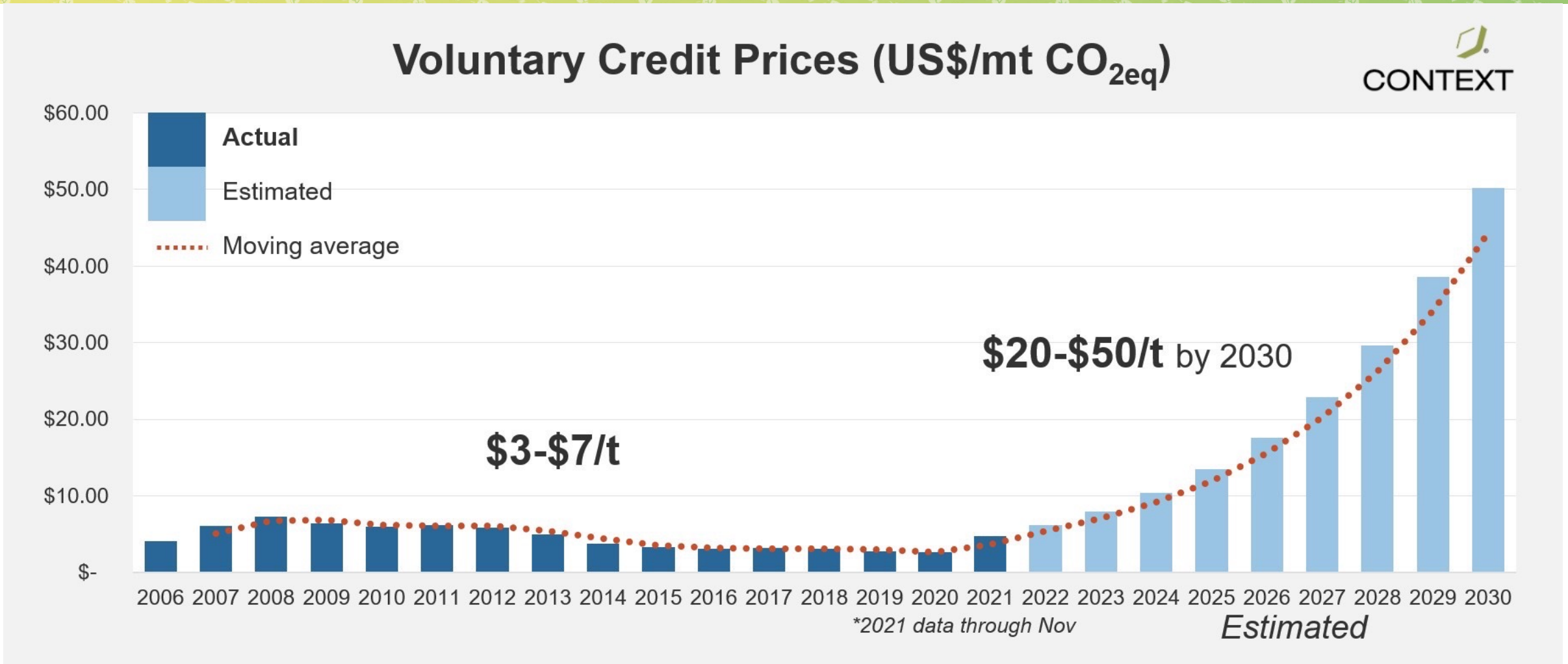
Market prices of Carbon Credits (3)



Source: https://decode6.org/articles/cabron-credits-priced-and-sold/

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REQUIREMENTS TO THE PROJECTS APPLYING FOR CARBON CREDITS

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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

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Requirements to the projects applying for Carbon Credits (2)

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

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ADDITIONAL REVENUES DUE TO THE CARBON CREDITS

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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)

- EF for Kyrgyzstan:
  - 0.114 (https://www.ebrd.com/downloads/about/sustainability/cef.pdf , 2009)
  - 0.0914 (https://ecometrica.com/assets/Electricity-specific-emission-factors-for-grid-electricity.pdf, 2011)
  - 0.112 (https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical_Profiles/Asia/Kyrgyzstan_Asia_RE_SP.pdf , 2020)

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Additional revenues due to the Carbon Credits (2)

- **Emission reductions, and potential revenues due to the generation/saving 1 kWh of electricity**

	Kyrgyzstan	Kazakhstan	Uzbekistan
EF, kg CO2/kWh	0.112	0.929	0.526
ER, t CO2	0.000112	0.000929	0.000526
Price of Carbon Credit, USD			
Optimistic scenario	2.0	2.0	2.0
Pessimistic scenario	0.6	0.6	0.6
Revenue, USC	0.0224	0.1858	0.1052
	0.00672	0.05574	0.03156
Tariff for RE in PPA, USC/kWh	5	5	5
"Share" of Carbon Credits, %	0.45%	3.72%	2.10%
	0.13%	1.11%	0.63%

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