



Article 6 Economic Analysis Workshop

25 January 2023



Agenda

- Opening remarks
- Findings from modelling runs
 - The impact of dropouts and club composition
 - Q&A
- Views from the negotiating room
 - Panel discussion: What to expect for carbon markets in 2023 and beyond
 - Q&A
- Closing remarks



Thanks!



SCHOOL OF
PUBLIC POLICY
CENTER FOR GLOBAL
SUSTAINABILITY



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety



NORWEGIAN MINISTRY OF
CLIMATE AND ENVIRONMENT



Department for
Business, Energy
& Industrial Strategy



The Rules of the Workshop

- Modified Chatham House Rule
 - You can report what was said, but not who said it, without their explicit permission
 - Presentations will be made available, unless the presenter requests that they not be
 - The agenda and attendees will be part of the open report of the meeting
- Snowmass rules
 - No whining
 - No grand standing
 - This is NOT all about you (the Snowmass Rule)
 - Do not break any of these rules unless you can break them all in less than 5 minutes (the Snowmass exception)



WELCOME REMARKS

- Dirk Forrister, IETA



Presentation

Findings from modelling runs: The impact of dropouts and club composition

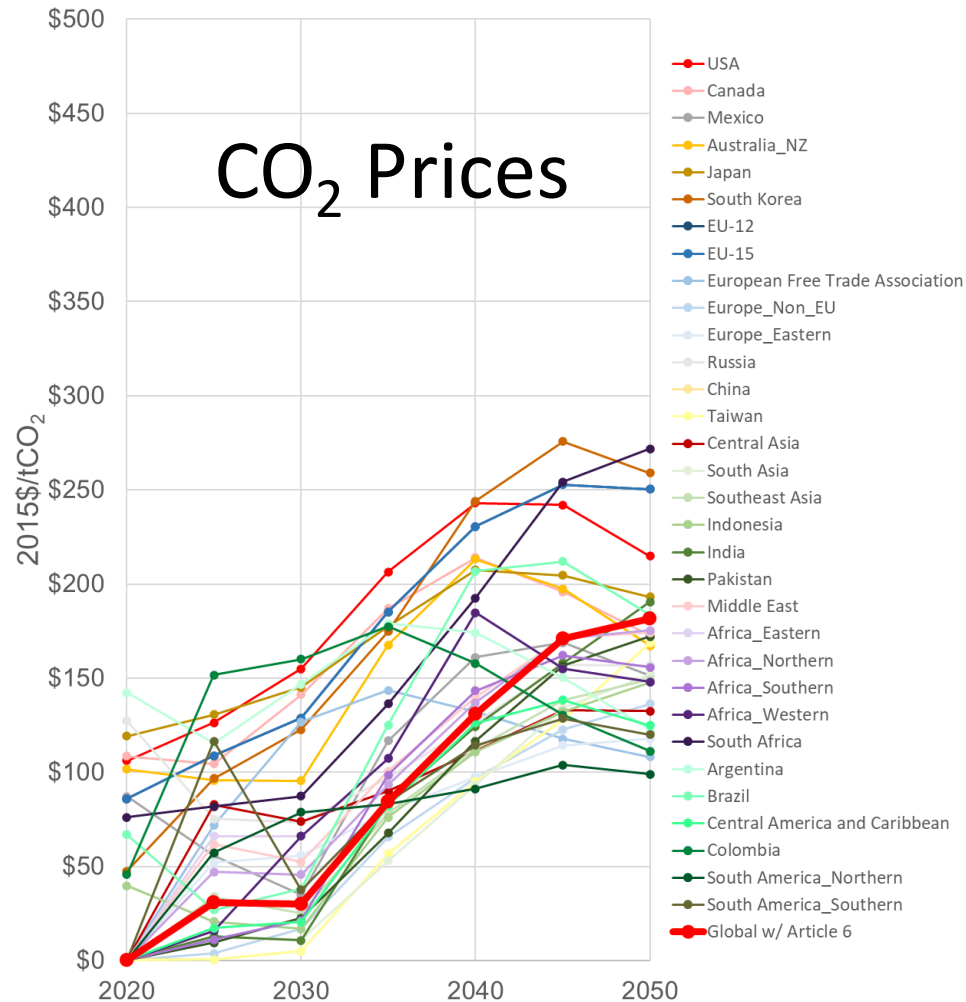
Jae Edmonds and Mel George, UMD/PNNL

Key Messages

- **Article 6 holds enormous potential for enabling Paris ambition.**
- Countries that continue to cooperate using Article 6 continue to benefit even when a large emitter does not participate.
- The club you join can affect how a country benefits from cooperative emissions mitigation.

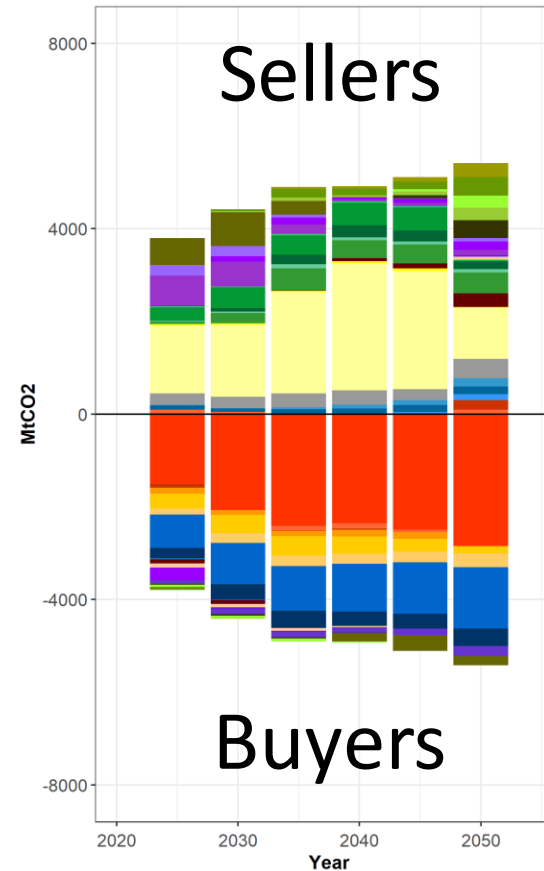
A Global Carbon Market—Updated to Glasgow

Glasgow Increased Ambition



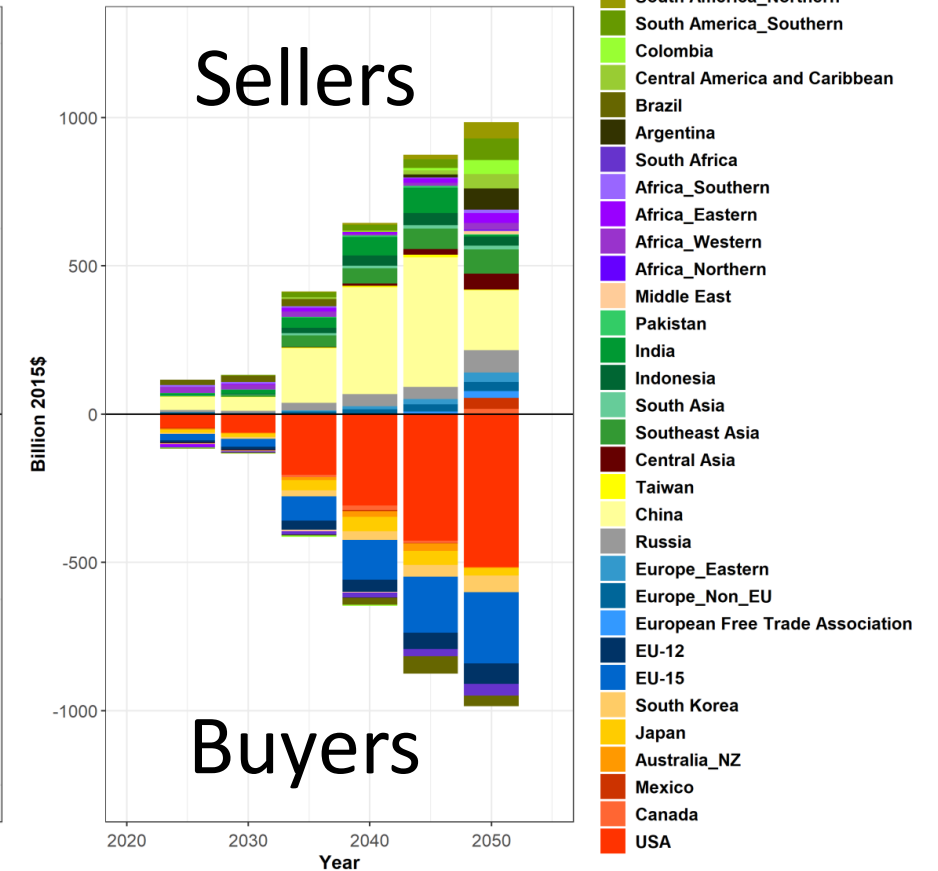
CO₂

Trade Flows Increased Ambition (MtCO₂)

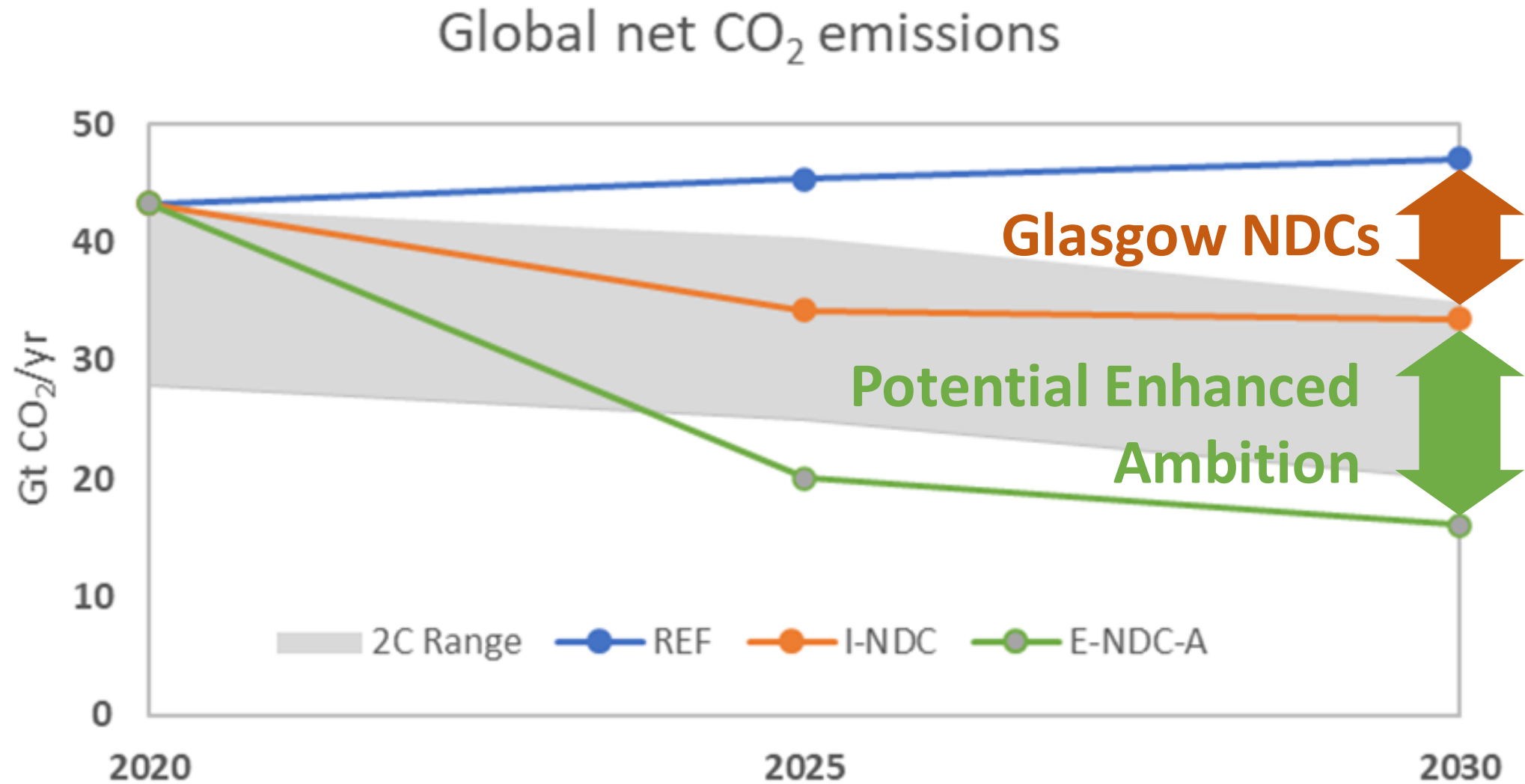


\$

Financial Flows Increased Ambition (Billion 2015\$)



A Global Carbon Market—Updated to Glasgow

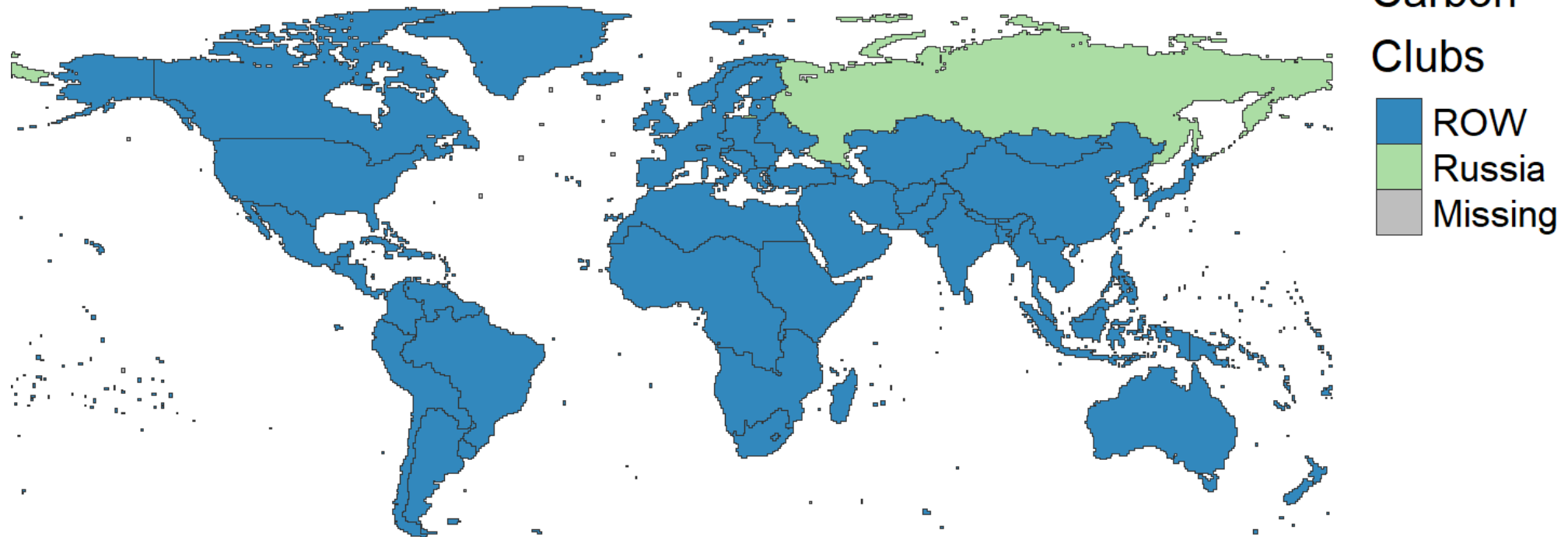


Impact of Dropouts

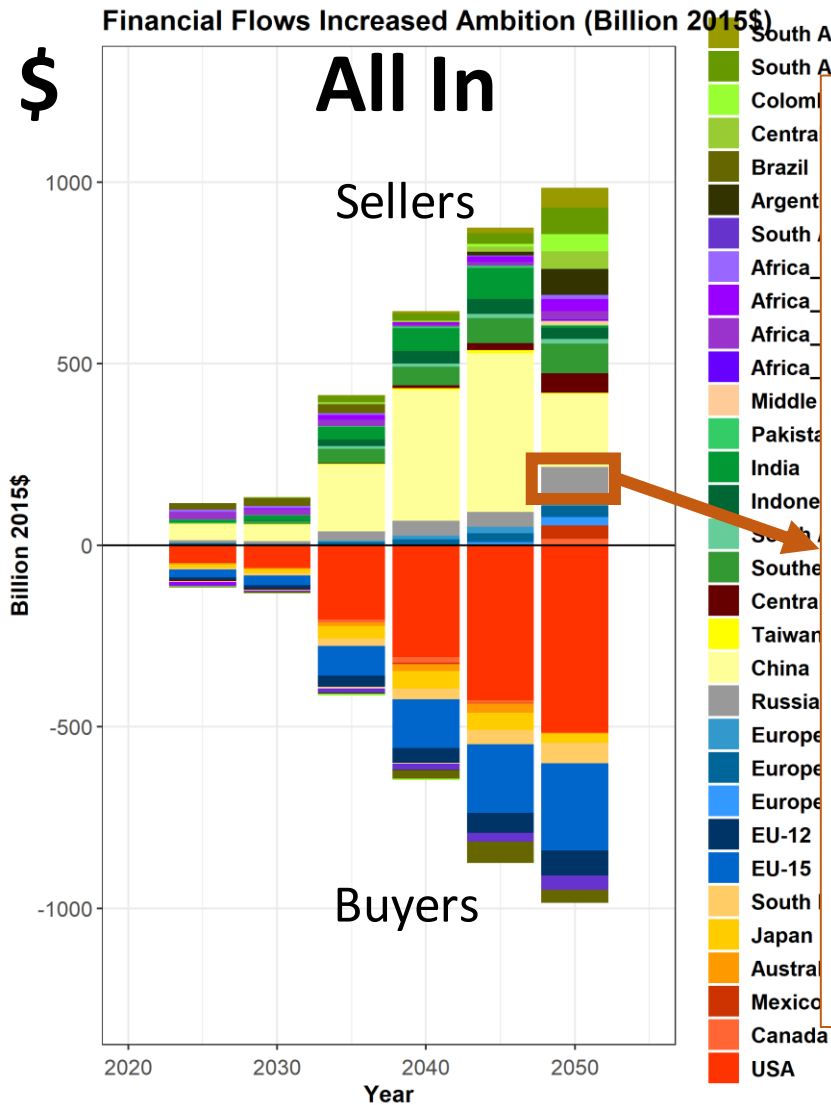
Countries that continue to cooperate using Article 6 continue to benefit even when a large emitter does not participate.

Impact of Russian Federation Independent Implementation

Cooperative Implementation of NDCs Without the Russian Federation



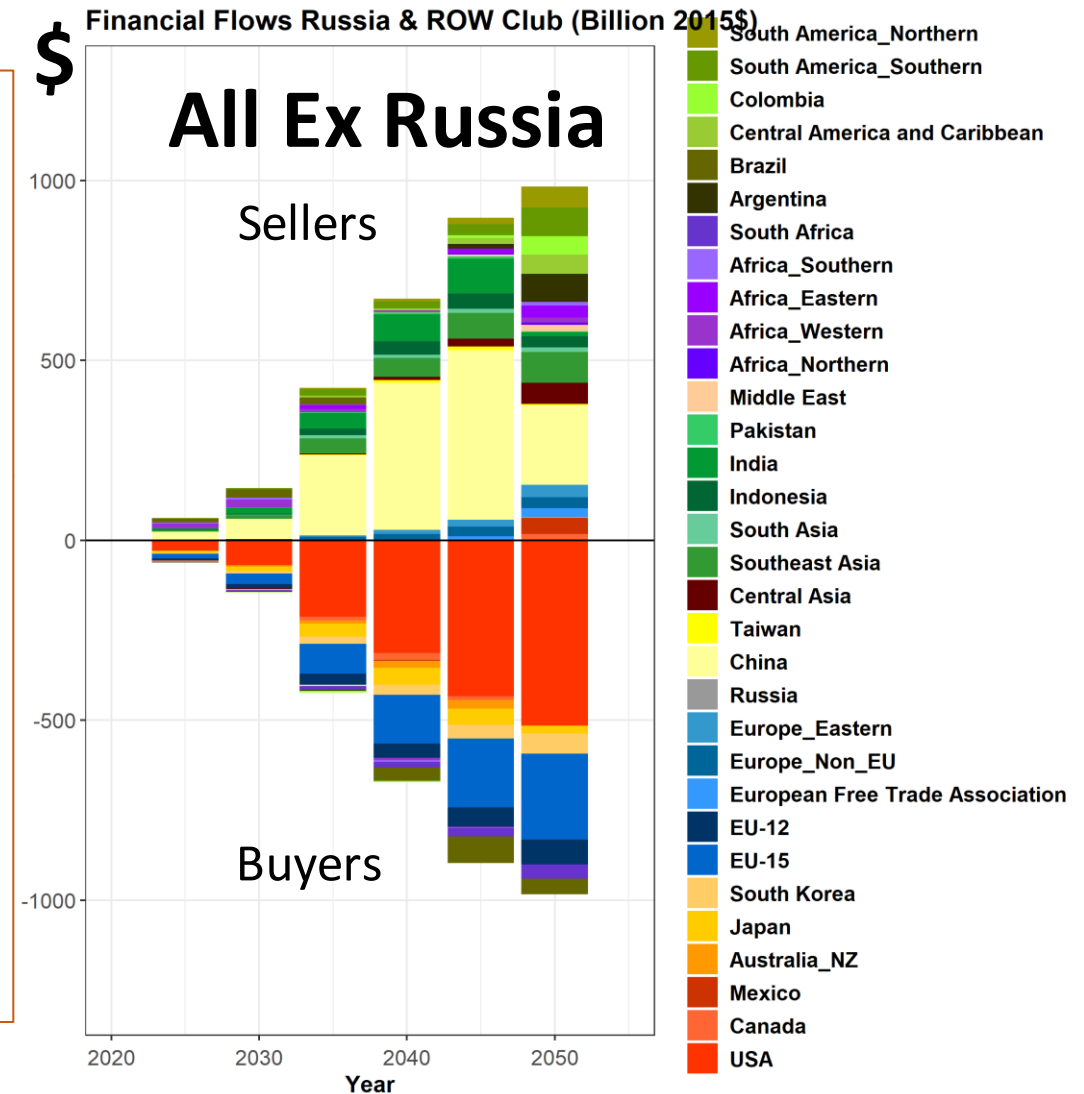
Carbon Markets with and without the Russian Federation



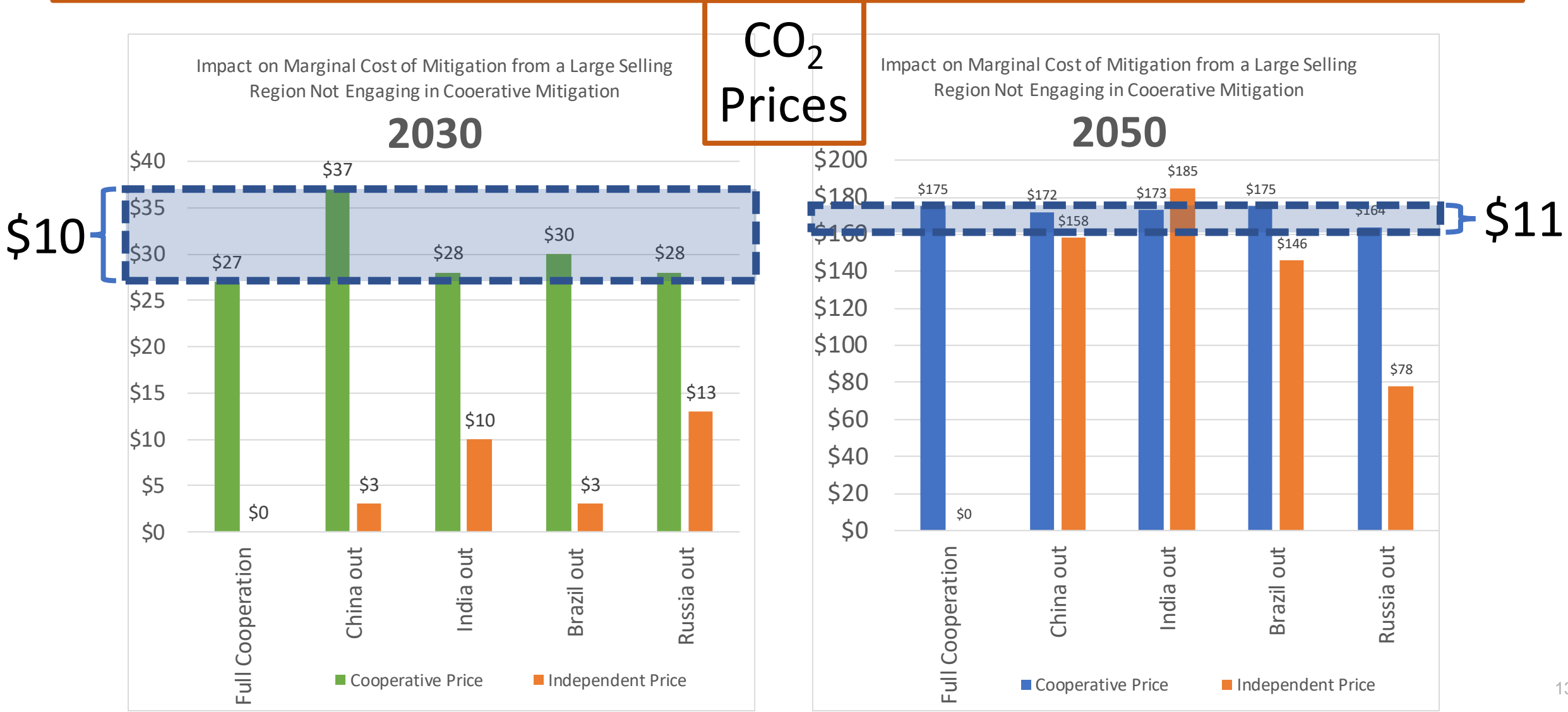
Russia
Revenue loss:

\$75 billion in
2050

Cumulative
\$850 billion
2022 to 2050



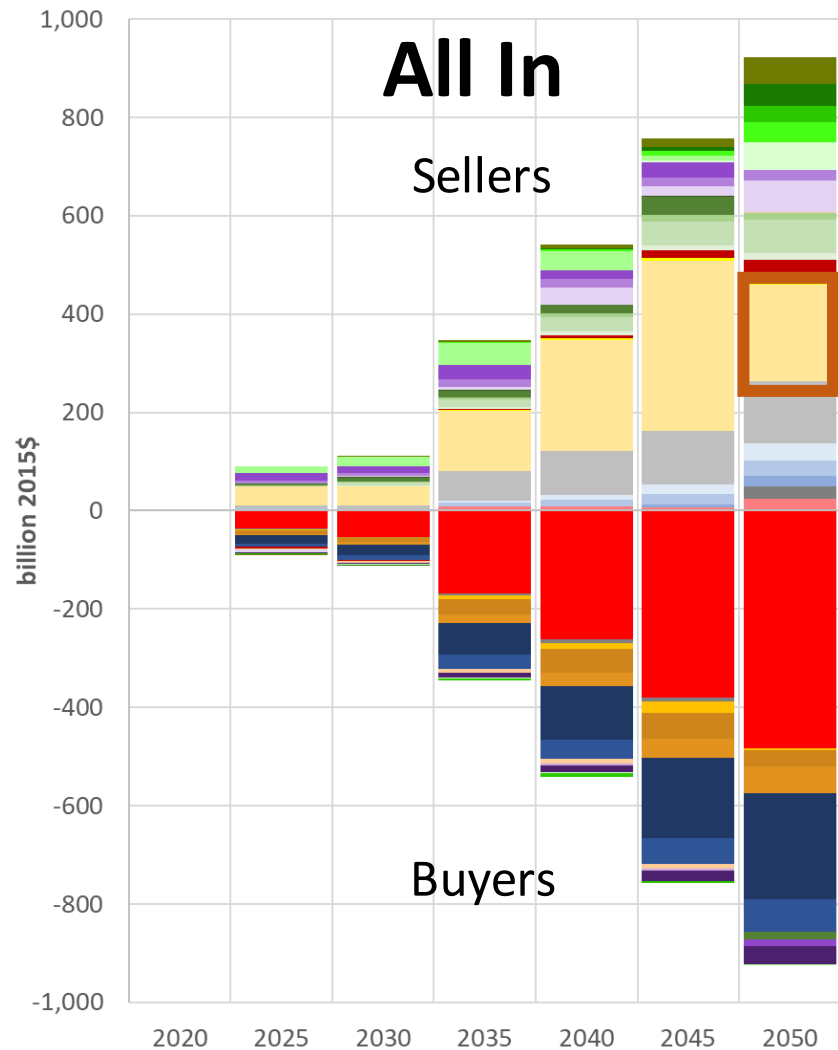
Dropping Any Individual Country Leaves the Market Largely Intact But Reduces Mitigation Incentives for the Country that Mitigates Independently



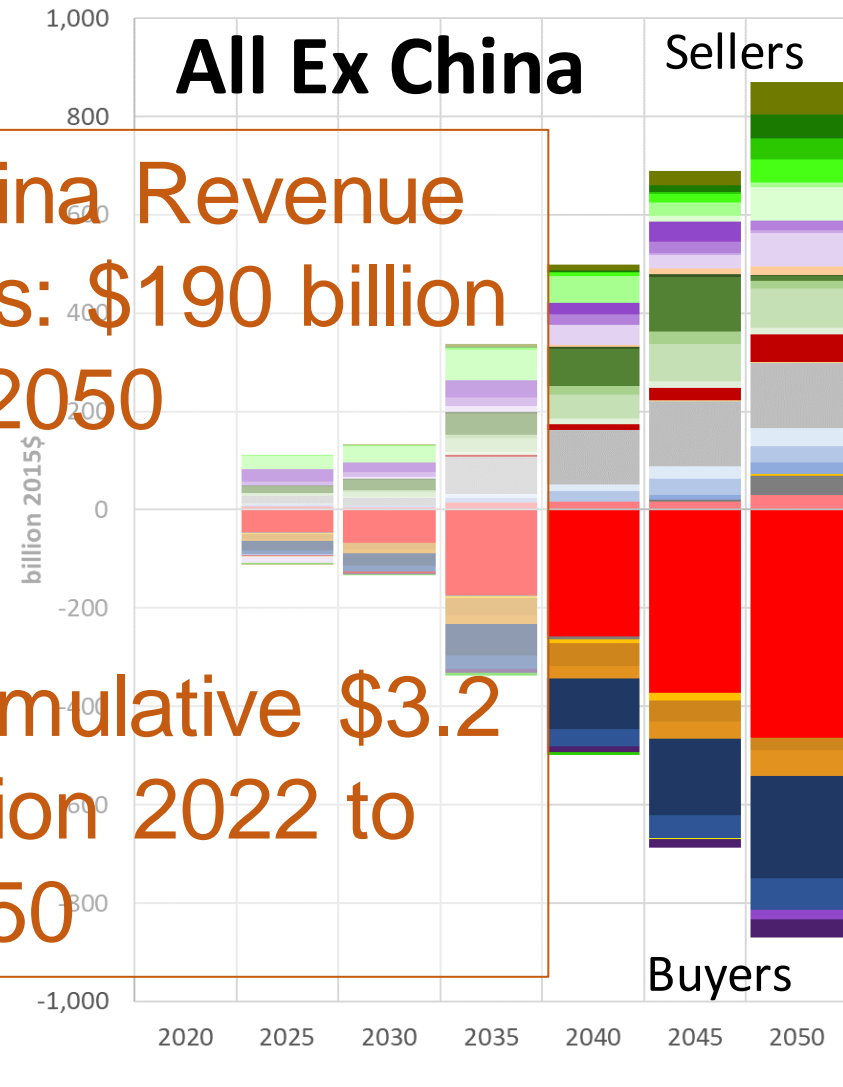
Carbon Markets with and without China

\$

Financial flows increased ambition



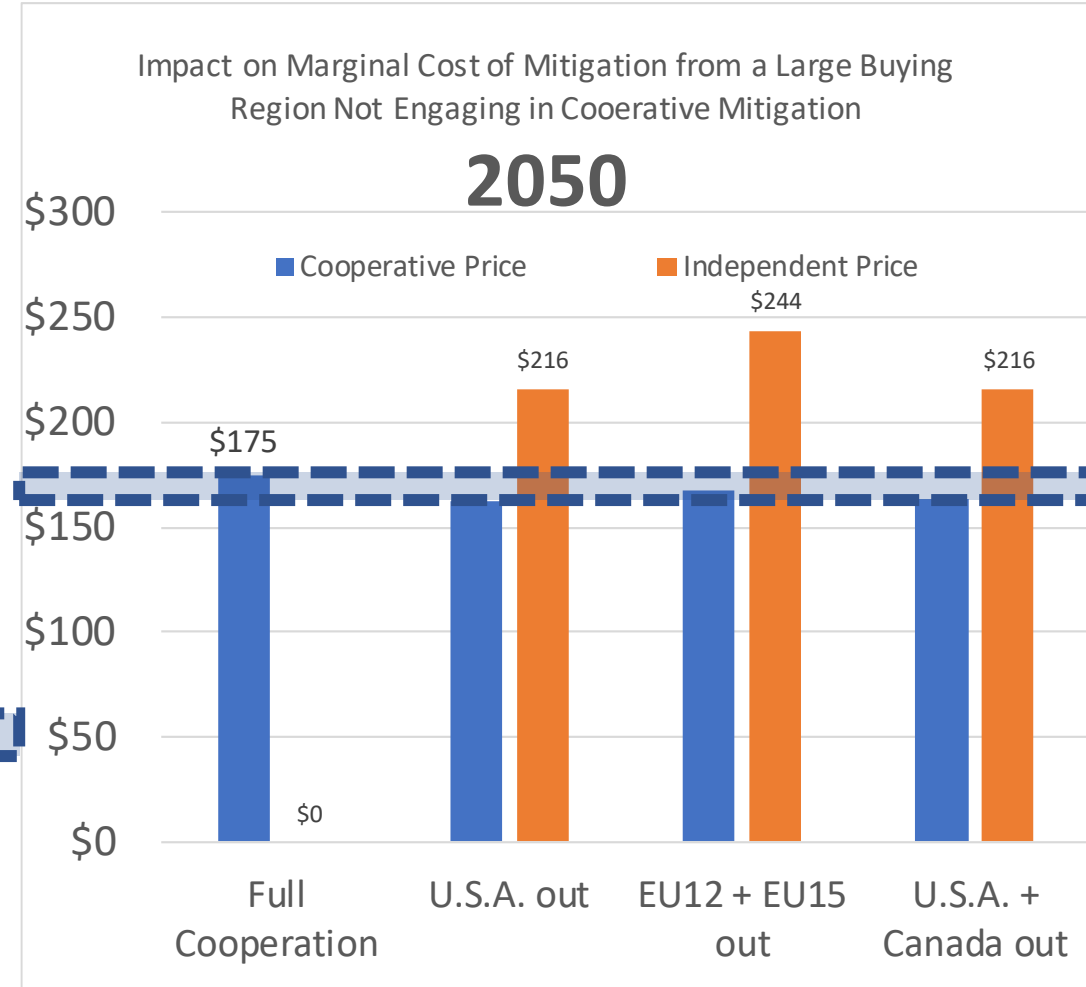
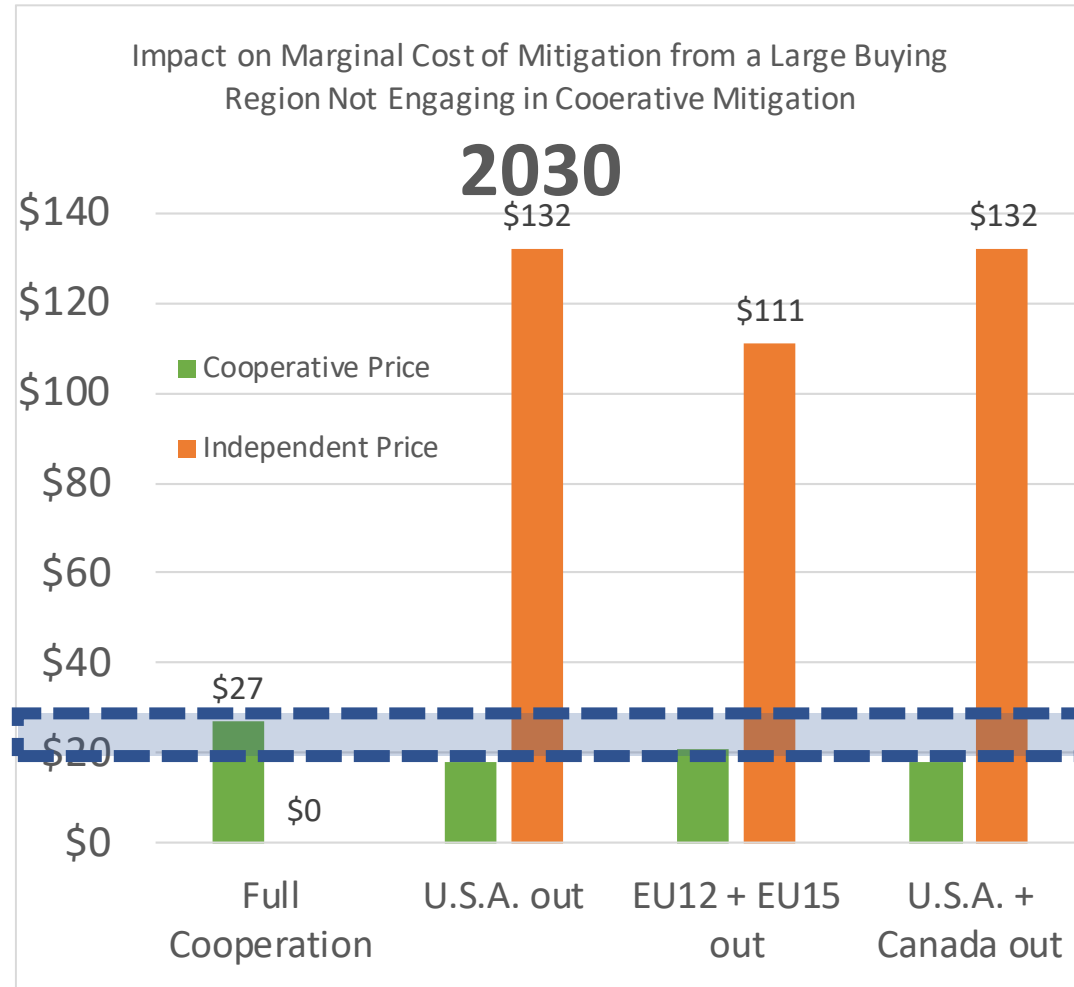
Financial flows RoW excluding China



China Revenue loss: \$190 billion in 2050

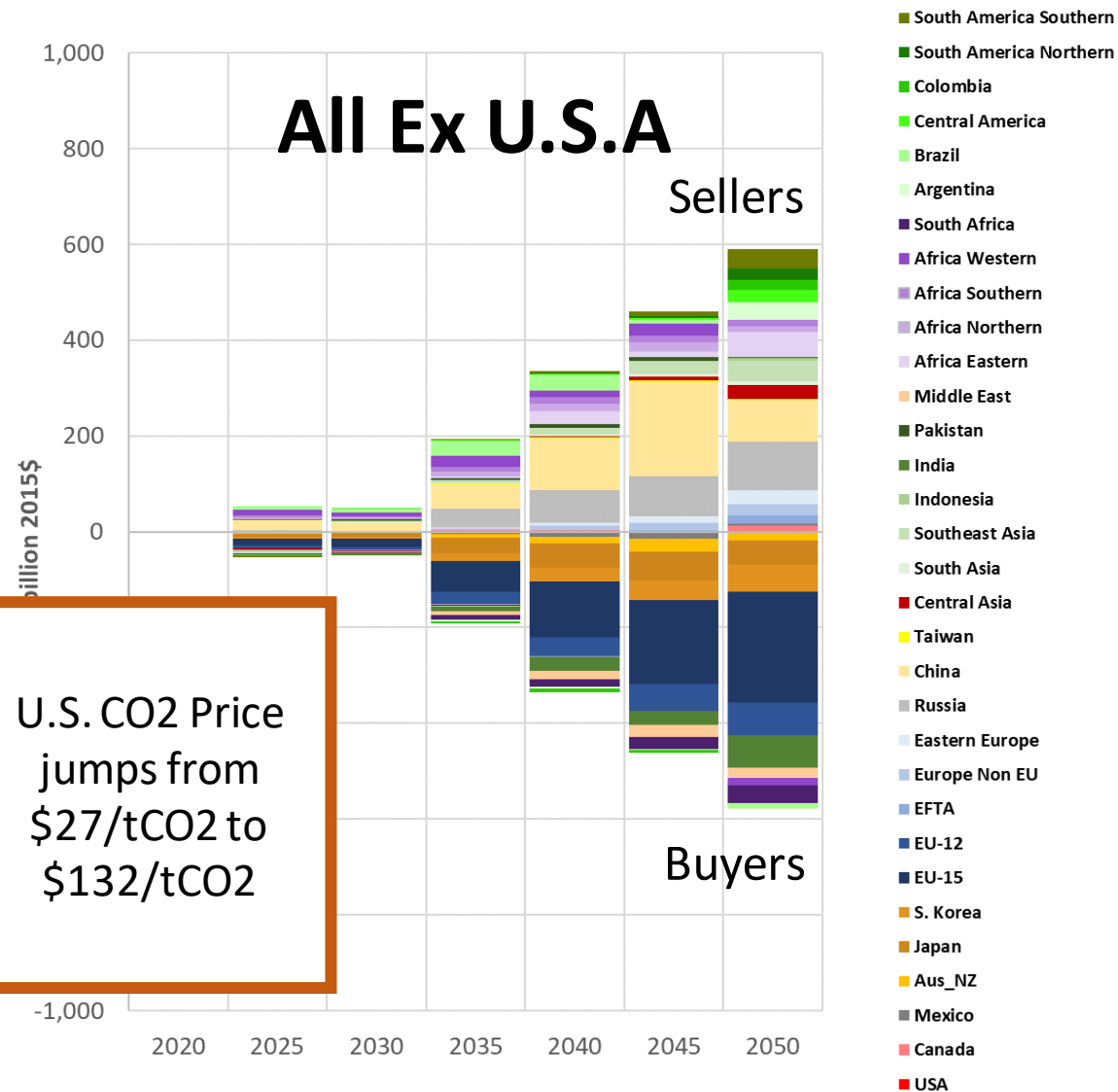
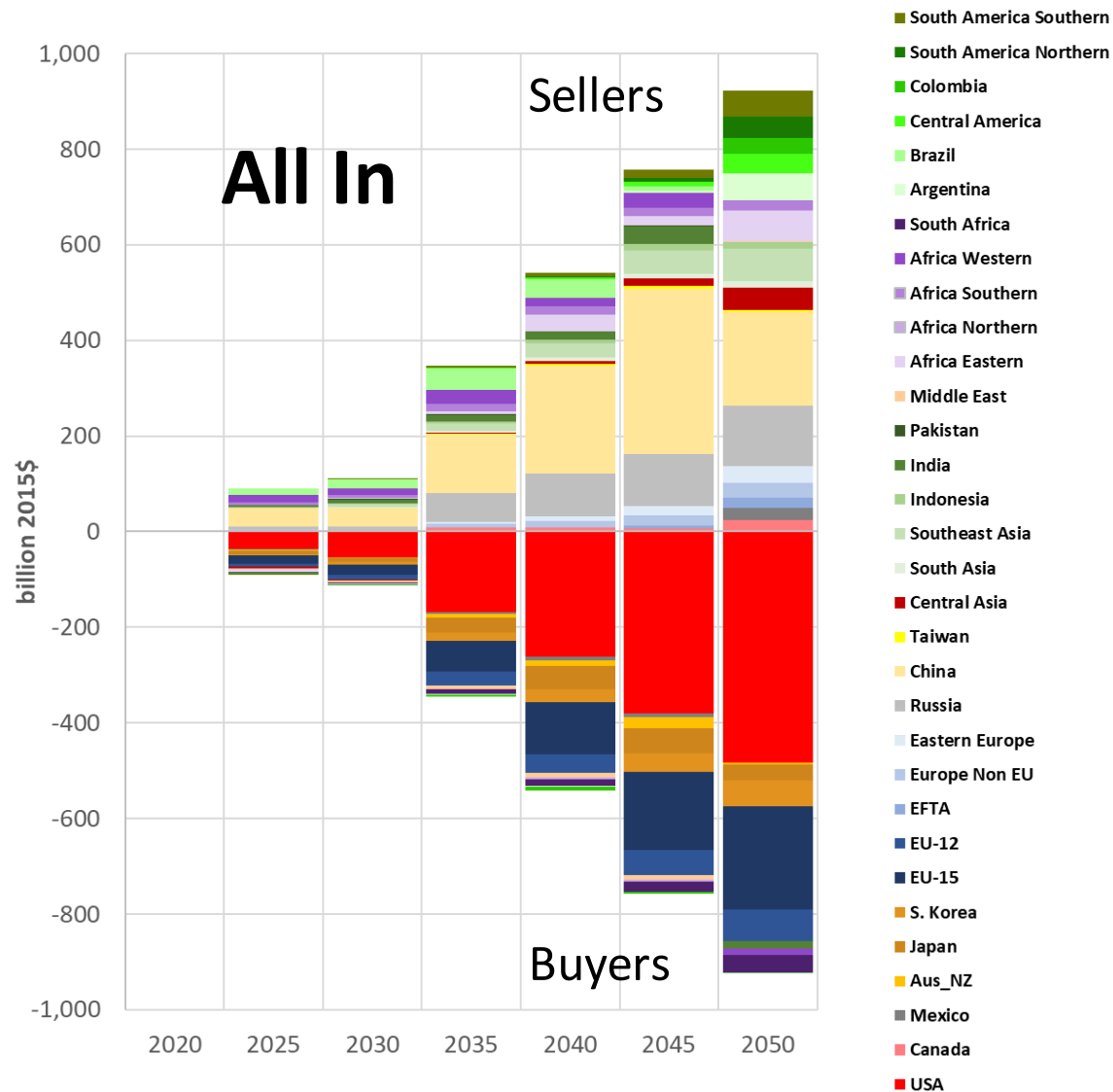
Cumulative \$3.2 trillion 2022 to 2050

Dropping Any Individual Country Leaves the Market Largely Intact But Reduces Mitigation Incentives for the Country that Mitigates Independently



Carbon Markets with and without the U.S.A

\$



U.S. CO2 Price
jumps from
\$27/tCO2 to
\$132/tCO2

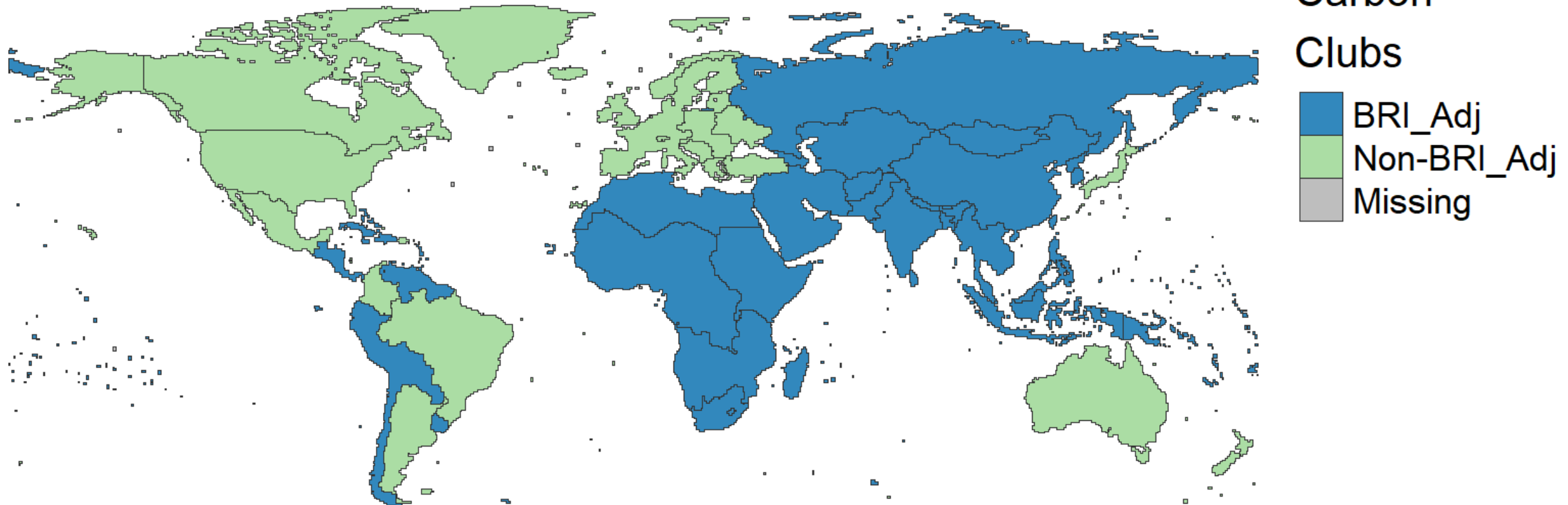
The Club You Join Affects Your
Role

Cooperation Clubs Can Provide Gains to Participants

A Hypothetical Club Based on China's Belt and Road Initiative (BRI)

Carbon Clubs scenario

Adjusted BRI & Non-BRI



Comparison of Global Cooperation to A Hypothetical Club Based on China's Belt and Road Initiative (BRI)

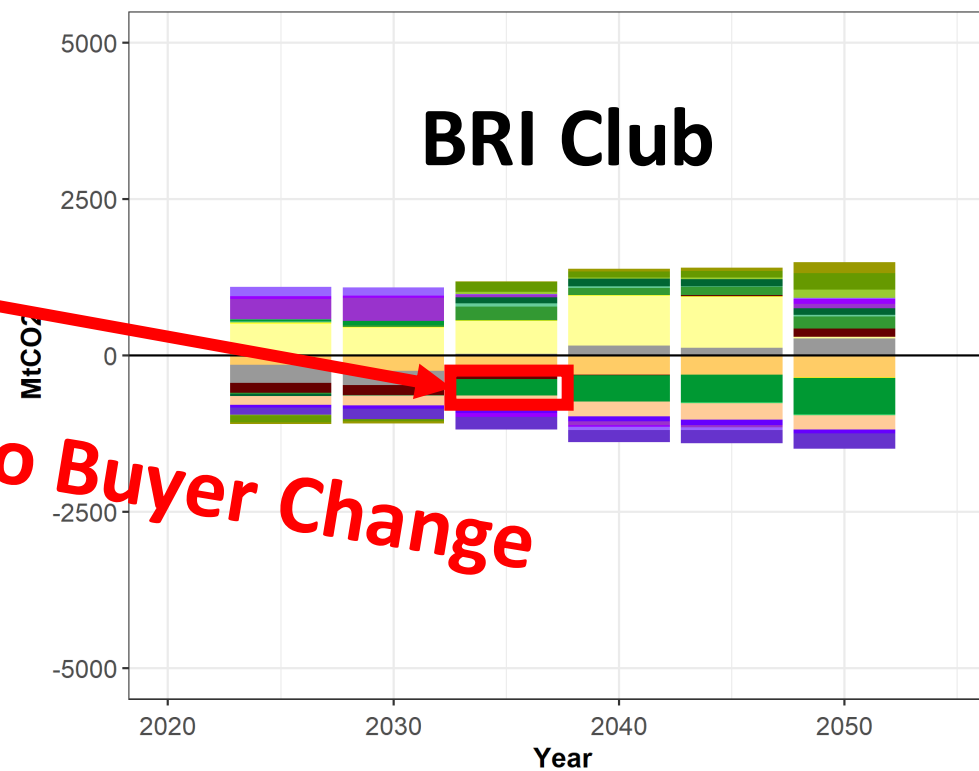
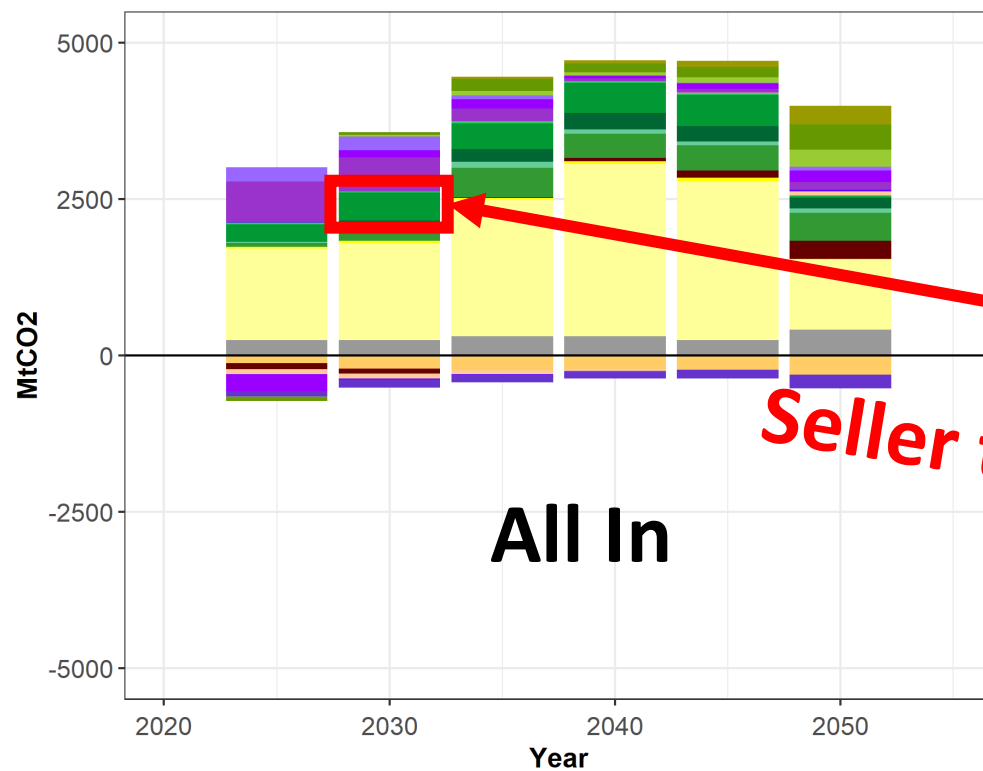
BRI Regions ITMO Transactions with Global Cooperation

BRI Regions ITMO Transactions with BRI-ONLY Cooperation

CO₂

Trade Flows in Adjusted BRI Regions (MtCO₂) - Global

Trade Flows in Adjusted BRI Regions (MtCO₂) - Club

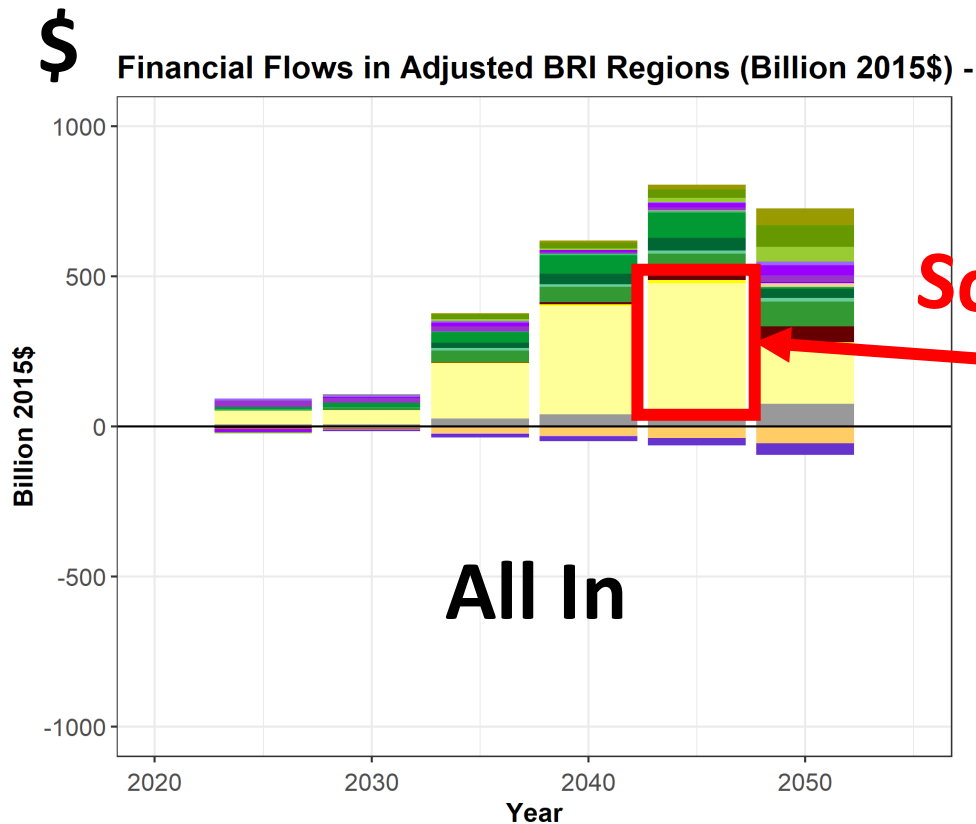


- South America_Northern
- South America_Southern
- Central America and Caribbean
- South Africa
- Africa_Southern
- Africa_Eastern
- Africa_Western
- Africa_Northern
- Middle East
- Pakistan
- India
- Indonesia
- South Asia
- Southeast Asia
- Central Asia
- Taiwan
- China
- Russia
- South Korea

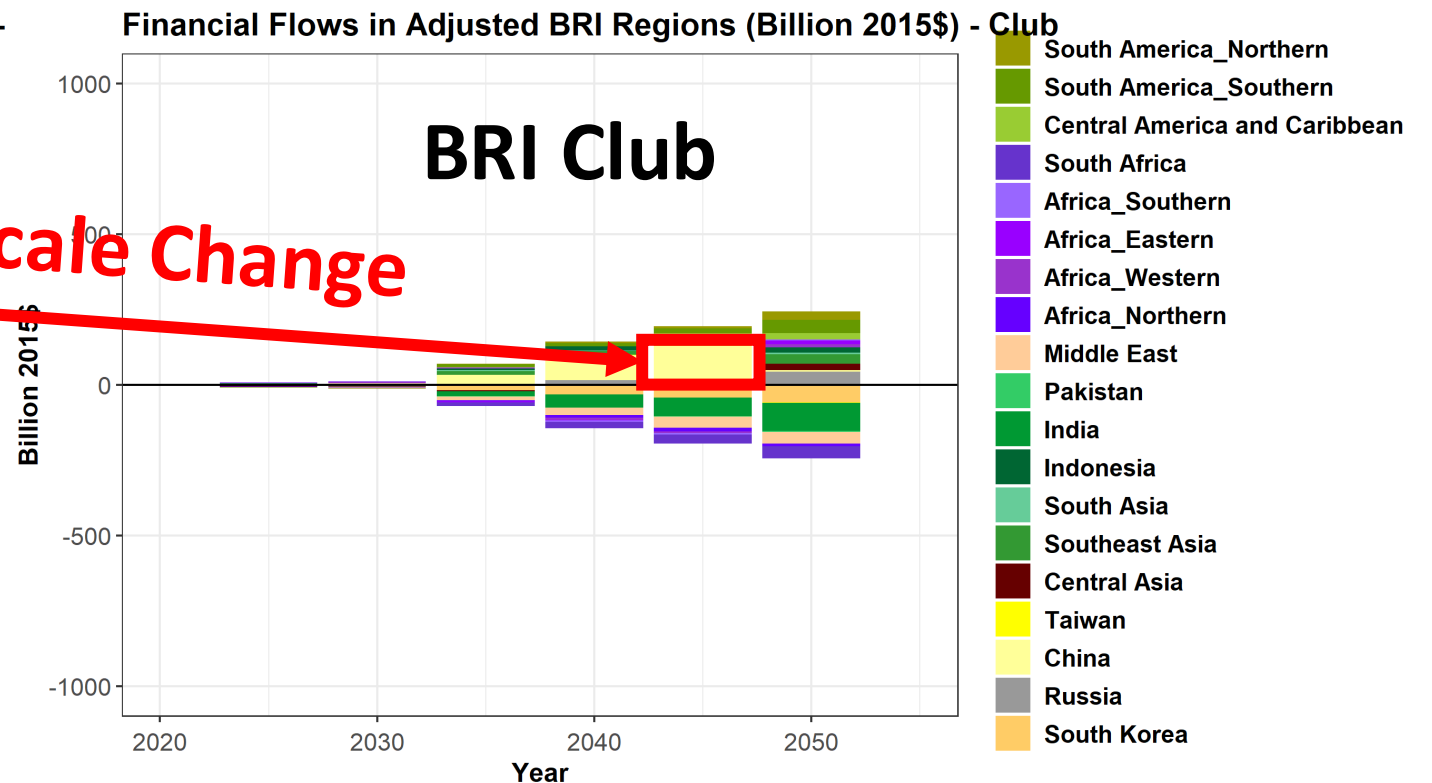
Seller to Buyer Change

Comparison of Global Cooperation to A Hypothetical Club Based on China's Belt and Road Initiative (BRI)

BRI Regions Financial Transactions
with Global Cooperation



BRI Regions Financial Transactions
with BRI-ONLY Cooperation



Key Messages

- **Article 6 holds enormous potential for enabling Paris ambition.**
- Countries that continue to cooperate using Article 6 continue to benefit even when a large emitter does not participate.
- The club you join will affect how a country benefits from cooperative emissions mitigation.
- Local design is important, e.g., SDG achievement (to be documented).

Future Work

Voluntary carbon markets, NDC achievement, and Global emissions mitigation

- **Motivation:** Voluntary carbon markets have been growing rapidly and induce activities with real-world consequences for the countries in which those actions occur, other countries connected in the global energy network, international financial transfers and for the Earth's climate.
- **Proposal:** We propose to investigate these interactions for a hypothetical, stylized, voluntary carbon market, to be determined.

Future Work

Possible Hypothetical Stylized Voluntary Carbon Markets

- **Power Sector:** Power sector in a country, e.g., U.S., takes on a voluntary commitment that is more aggressive than implied by the resident country's NDC. Power sector achieves emissions mitigation through both reduced emissions and purchased offsets.
- **Fuels Sector:** Producers of fuels, e.g. refineries, commit to purchase offsets to cover X% of the associated emissions associated with downstream fuel use.



Discussion

Panel

Views from the negotiating room – What to expect for carbon markets in 2023 and beyond, and how analysis may help

Maria Jishi, Saudi Arabia

Martin Hession, European Union

MJ Mace, AOSIS

Piotr Dombrovicki, Poland

Moderator: Andrea Bonzanni, IETA

Discussion

CLOSING REMARKS

- Dirk Forrister, IETA
- Jae Edmonds, UMD/PNNL



THANK YOU

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