

# The Value of Article 6

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# How Valuable is Article 6?

## *What is the potential economic value of implementing Article 6?*

- What is the **potential** size of the carbon market?
- Who would be the sellers and who would be the buyers?
- How much could costs be reduced?



Source: [https://unfccc.int/files/focus/long-term\\_strategies/application/pdf/mid\\_century\\_strategy\\_report-final\\_red.pdf](https://unfccc.int/files/focus/long-term_strategies/application/pdf/mid_century_strategy_report-final_red.pdf)

# How Valuable is Article 6?

- Article 6 holds significant potential to reduce cost and enhance ambition
  - 2030 ~\$270 billion 2015 US\$
- Some countries would benefit more, but everyone could be better off through collaboration.
- Realizing this potential is a real-world challenge
  - Near-term: Translating NDCs to Internationally Transferred Mitigation Outcomes (ITMOs)
  - Long-term: It could take any number of forms including NDC coalitions, ratchet mechanisms, or other novel approaches.

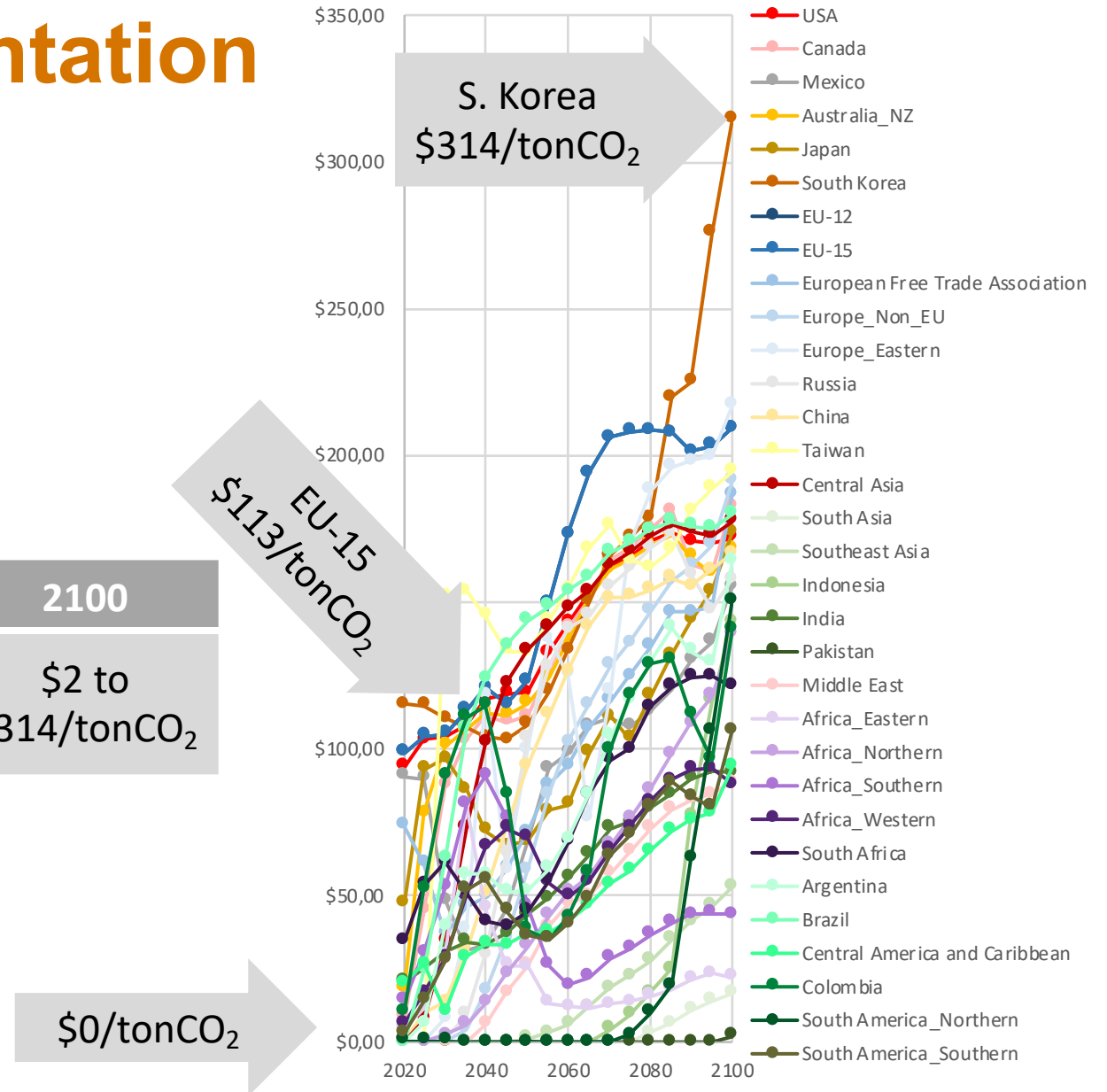


# NDC Shadow Prices: Independent Implementation

- Wide range in shadow prices

	2030	2050	2100
I-NDC Range	\$0 to \$152/tonCO <sub>2</sub>	\$0 to \$144/tonCO <sub>2</sub>	\$2 to \$314/tonCO <sub>2</sub>

## Shadow Price of CO<sub>2</sub>

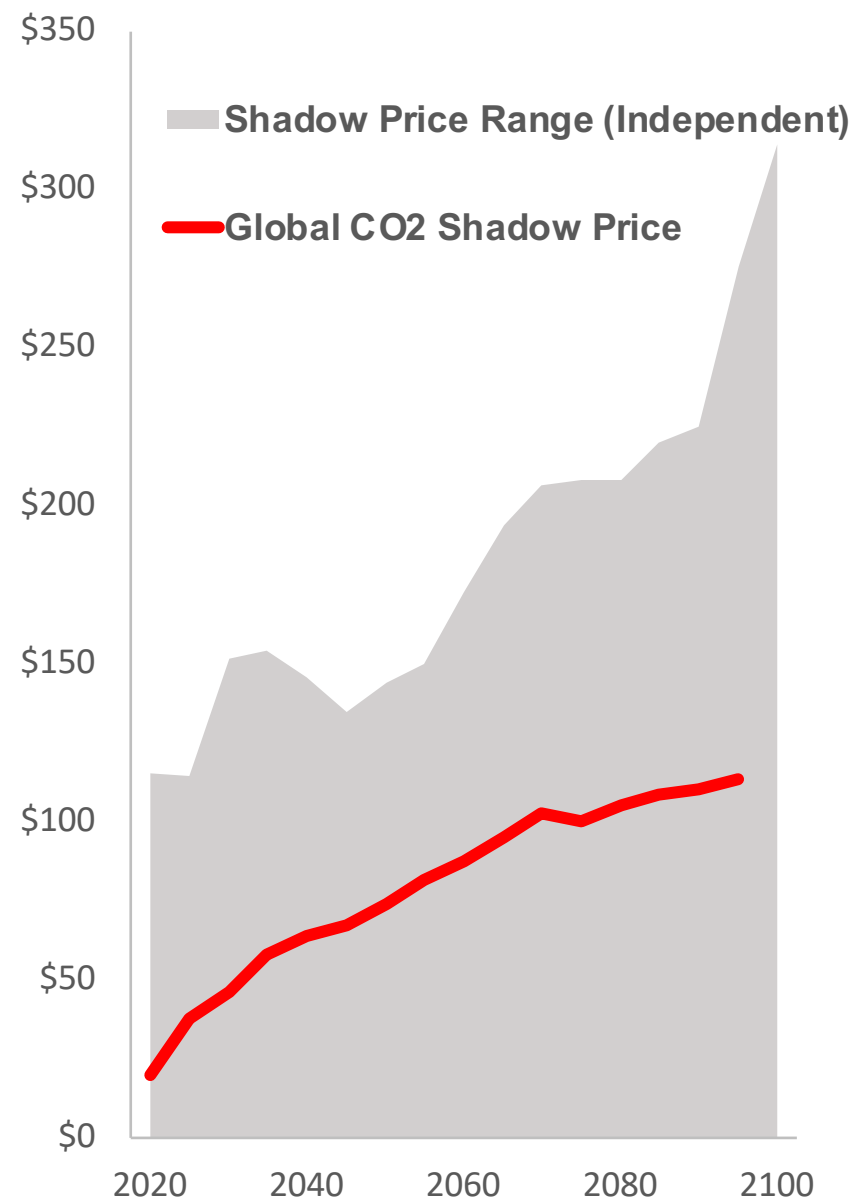


# NDC Shadow Prices: Independent vs. Joint Implementation

- Joint implementation shadow price lies between high and low prices of independent implementation

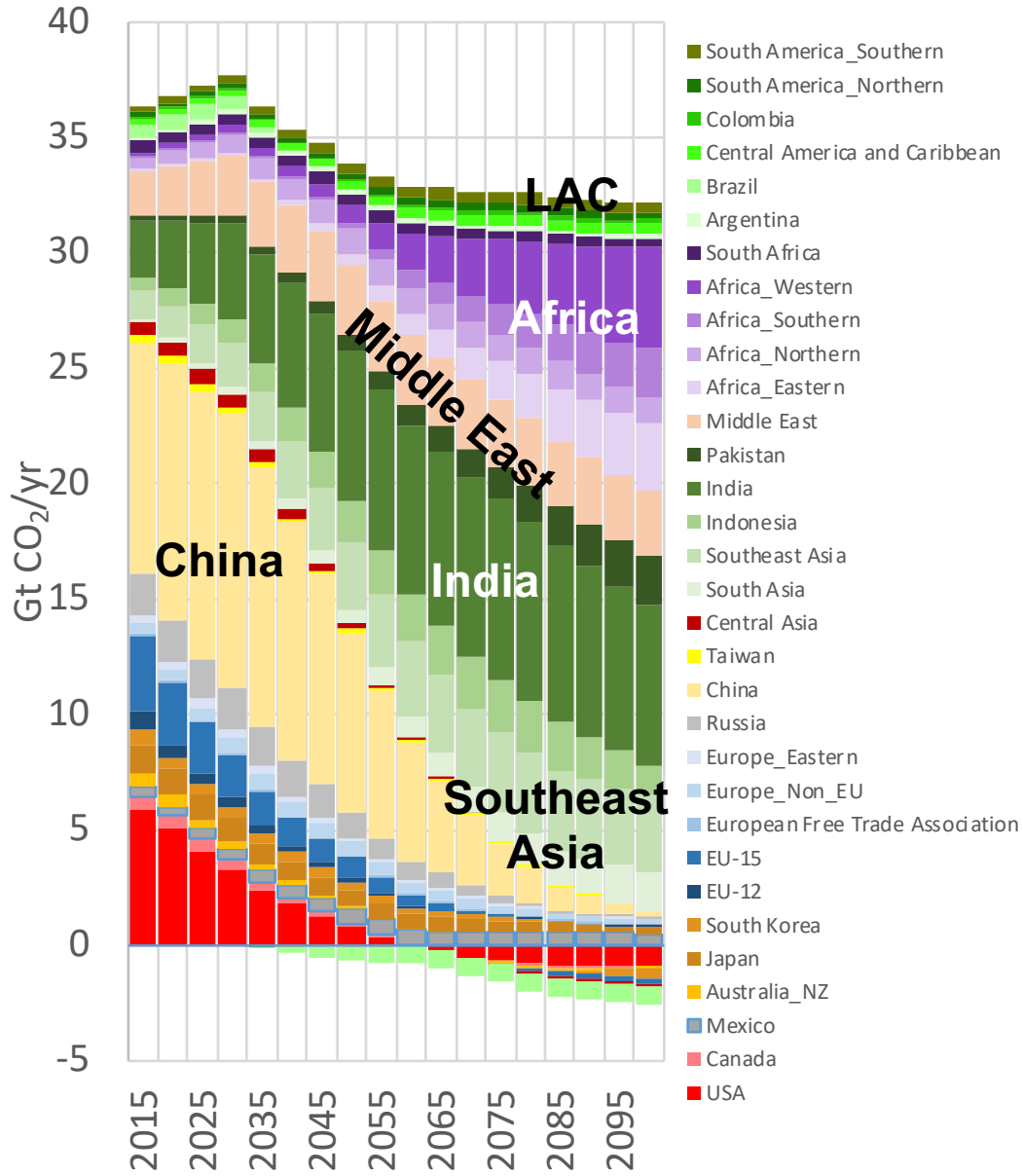
	2030	2050	2100
I-NDC Range	\$0 to \$152/tonCO <sub>2</sub>	\$0 to \$144/tonCO <sub>2</sub>	\$2 to \$314/tonCO <sub>2</sub>
<b>J-NDC</b>	<b>\$46/tonCO<sub>2</sub></b>	<b>\$74/tonCO<sub>2</sub></b>	<b>\$120/tonCO<sub>2</sub></b>

## Shadow Price of CO<sub>2</sub>

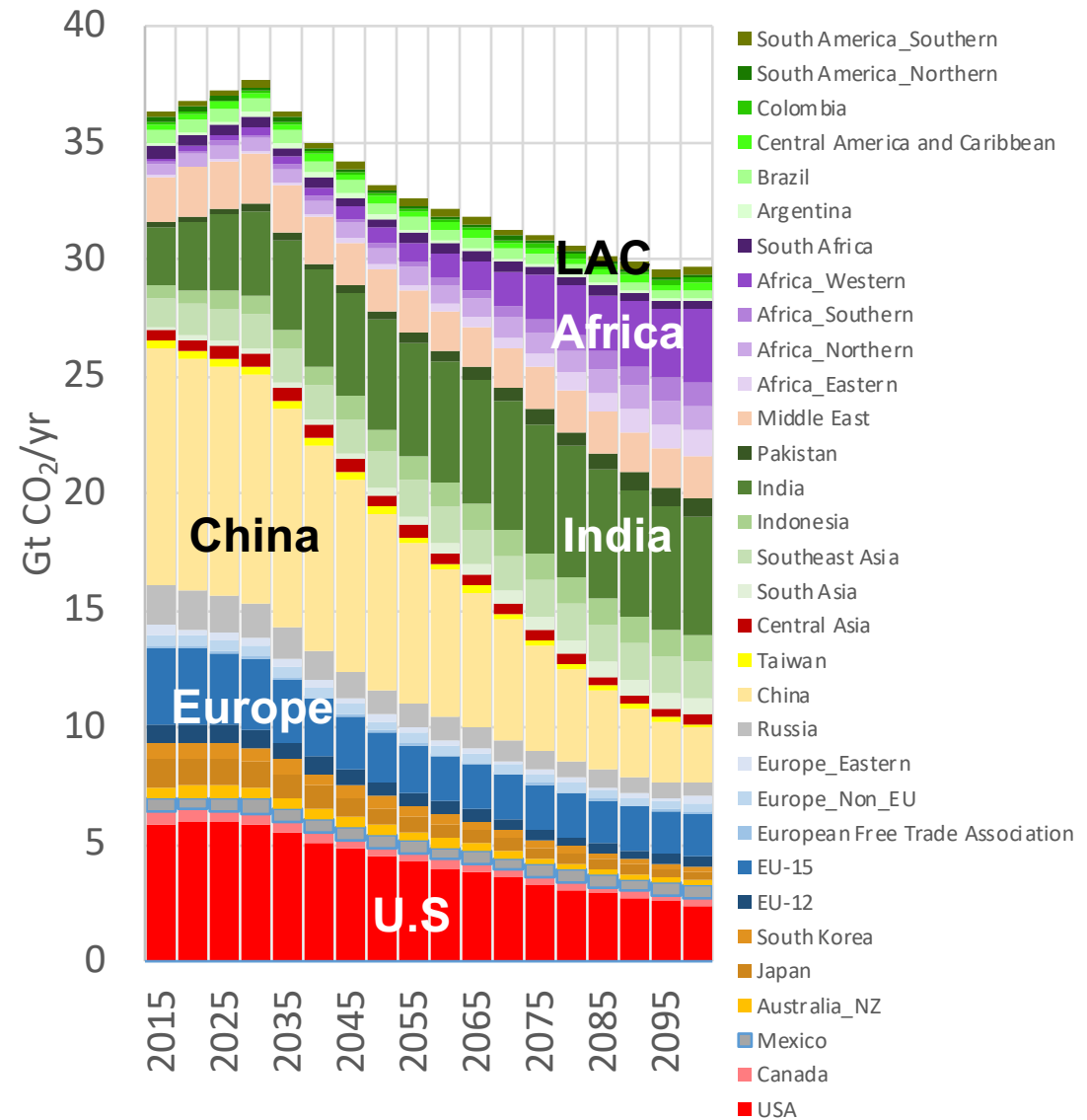


# NDC Emissions: Independent vs. Joint Implementation

## Global I-NDC Scenario CO<sub>2</sub> Emissions

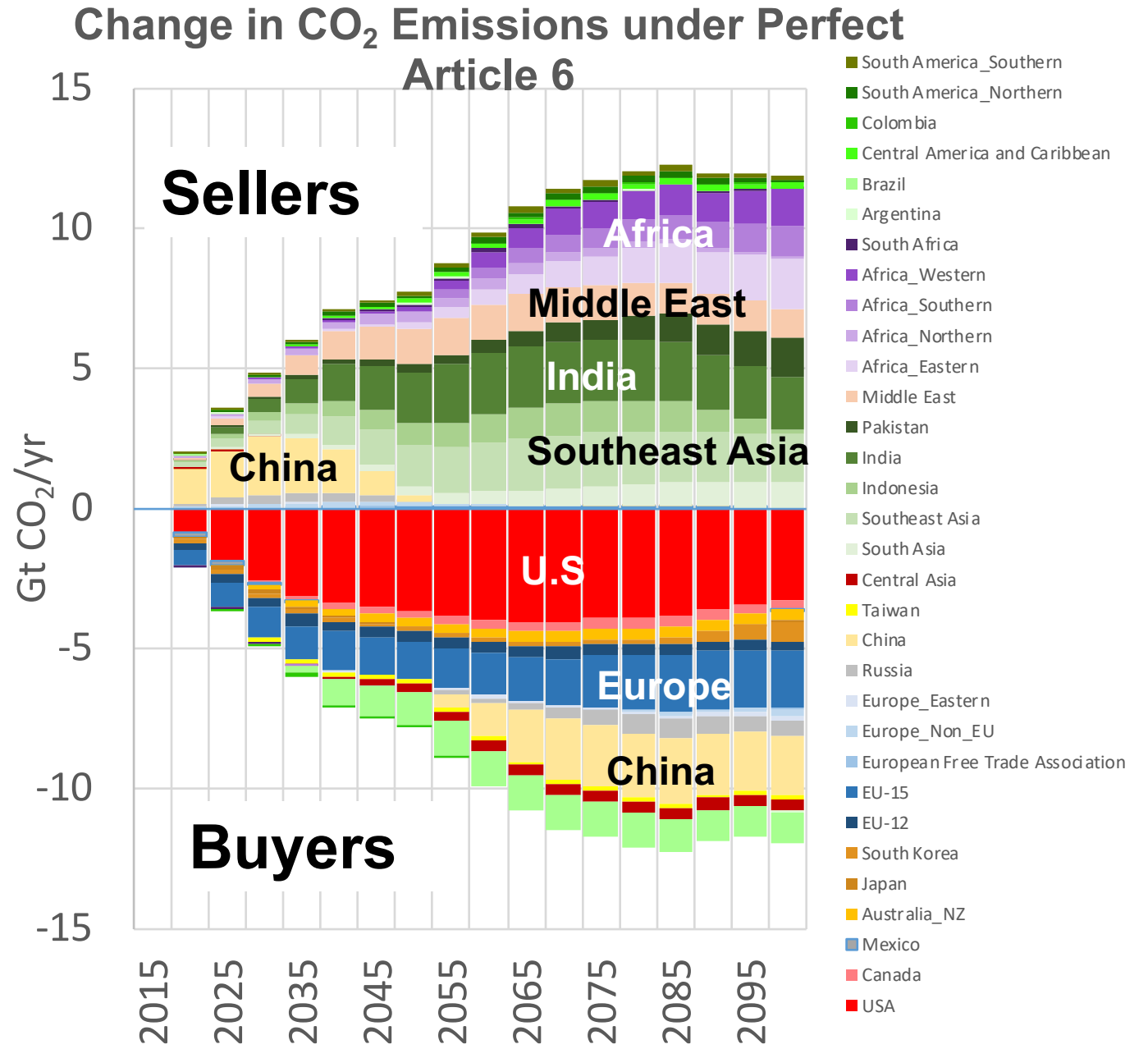


## Global J-NDC Scenario CO<sub>2</sub> Emissions



# Potential changes in emissions—CO<sub>2</sub>

- Seller (13 regions)
- Buyer (6 regions)
- Seller to buyer (10 regions)
- Buyer to seller (South Africa)
- Seller to buyer to seller (Colombia)
- Buyer to seller to buyer (European Free Trade)



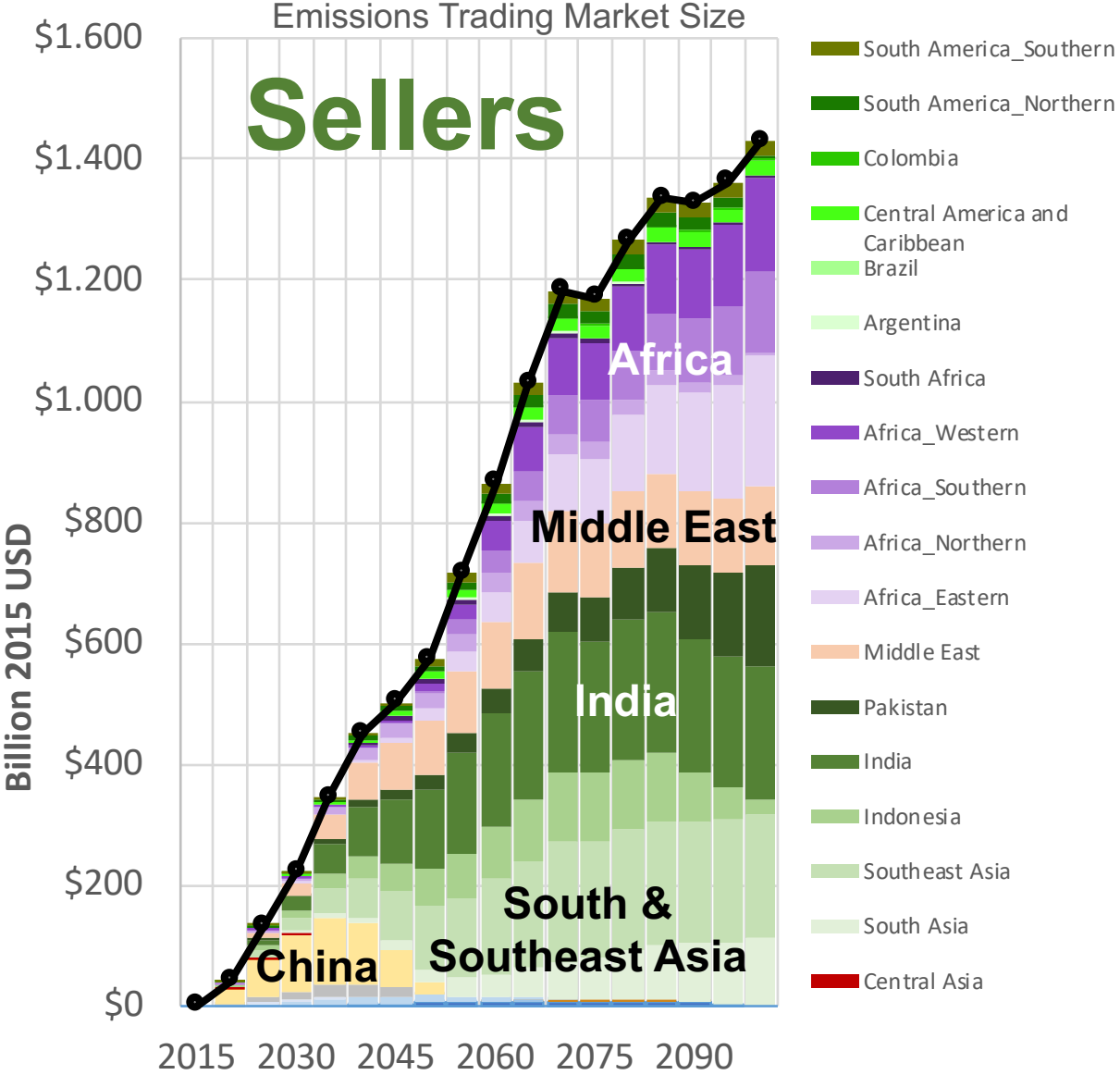


# Potential changes in emissions—CO<sub>2</sub>

Year	Change emissions distribution
2030	<b>5 GtCO<sub>2</sub>/yr</b> <b>(44% of total Mitigation in 2030)</b>
2050	<b>8 GtCO<sub>2</sub>/yr</b> <b>(26% of total Mitigation in 2030)</b>
2100	<b>12 GtCO<sub>2</sub>/yr</b> <b>(23% of total Mitigation in 2030)</b>

# Potential Market Size—Billion of 2015 US\$

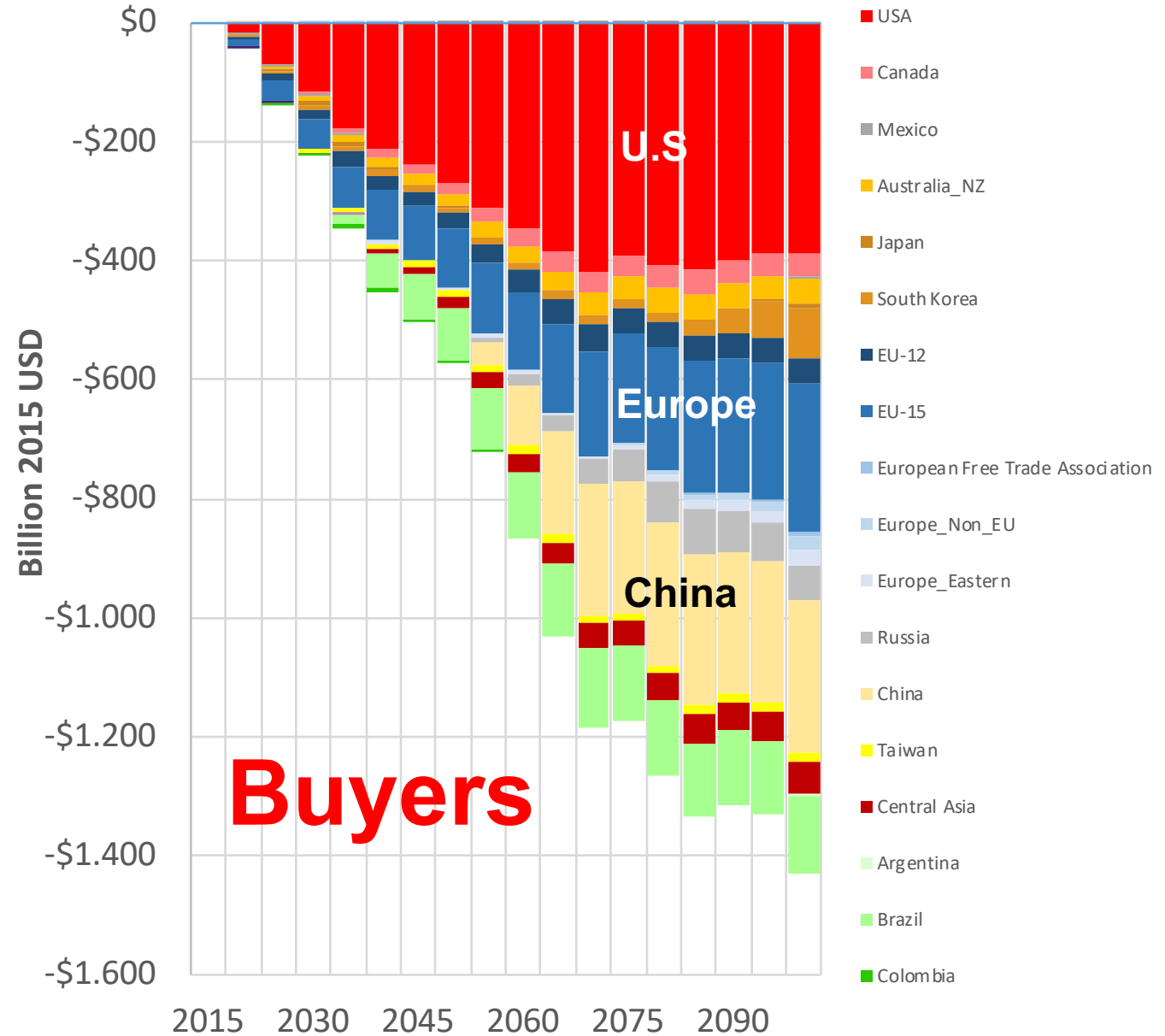
Year	Market Size (Billion 2015 US\$)
2030	\$222
2050	\$572
2100	\$1,430



# Potential Market Size—Billion of 2015 US\$

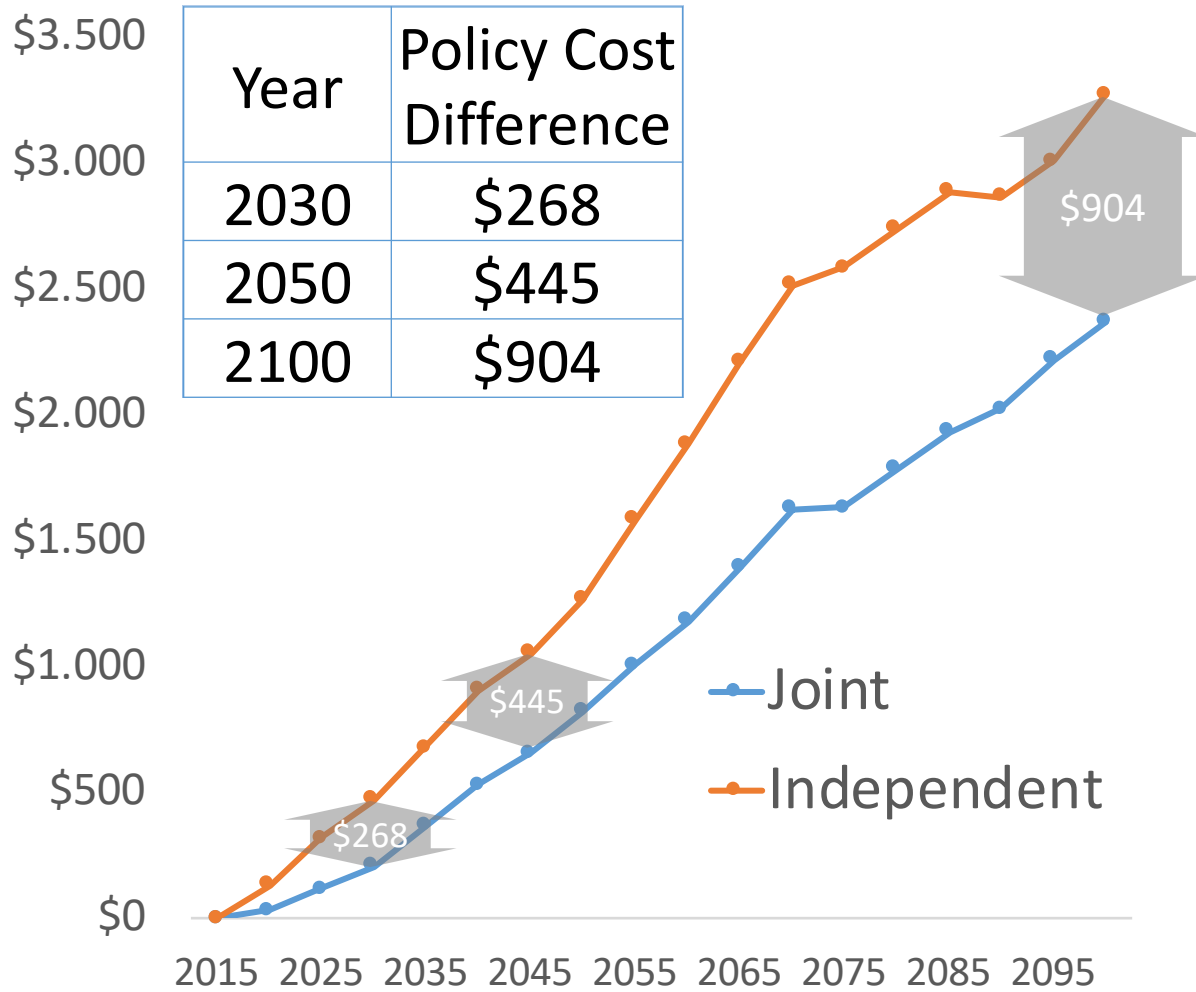
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Emissions Trading Market Size

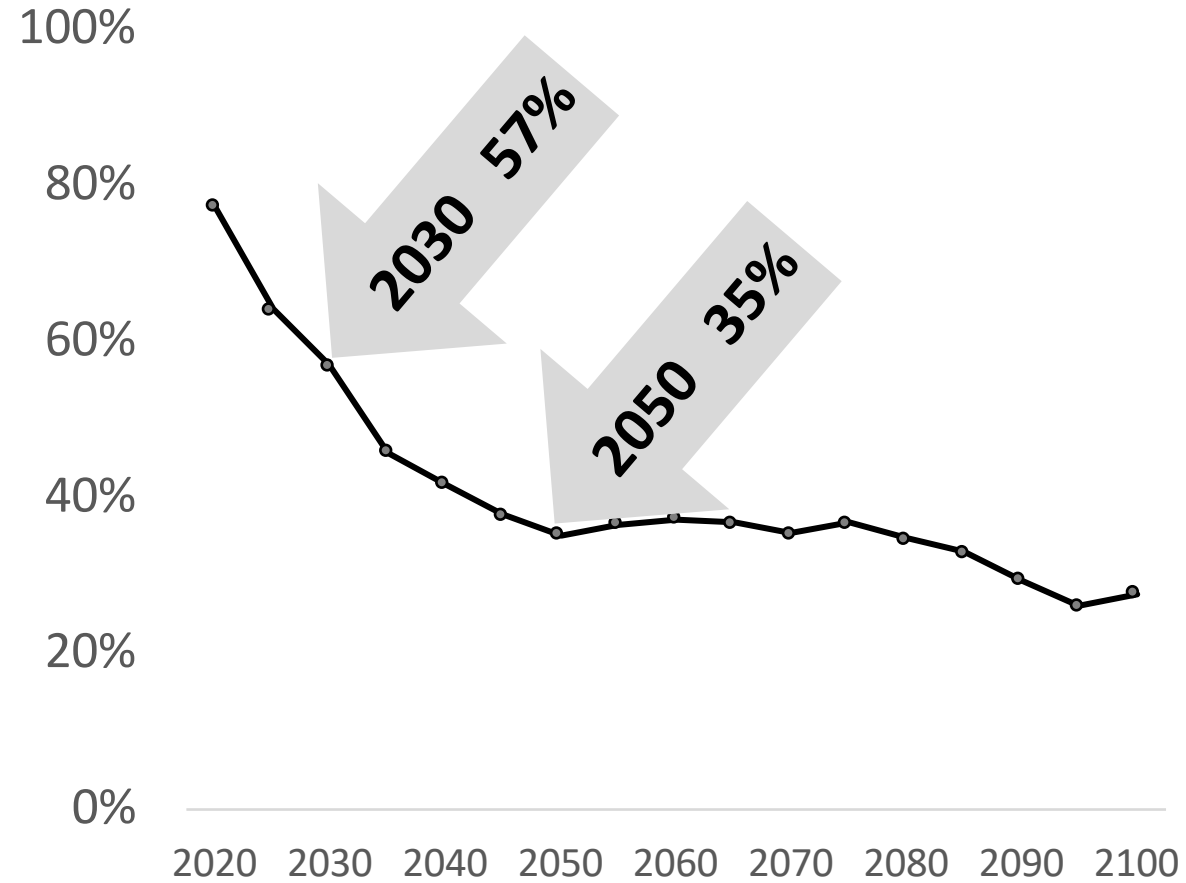


# Emissions Mitigation Cost: Independent vs. Joint Implementation

## Emissions Mitigation Cost (billion 2015 US\$/yr)

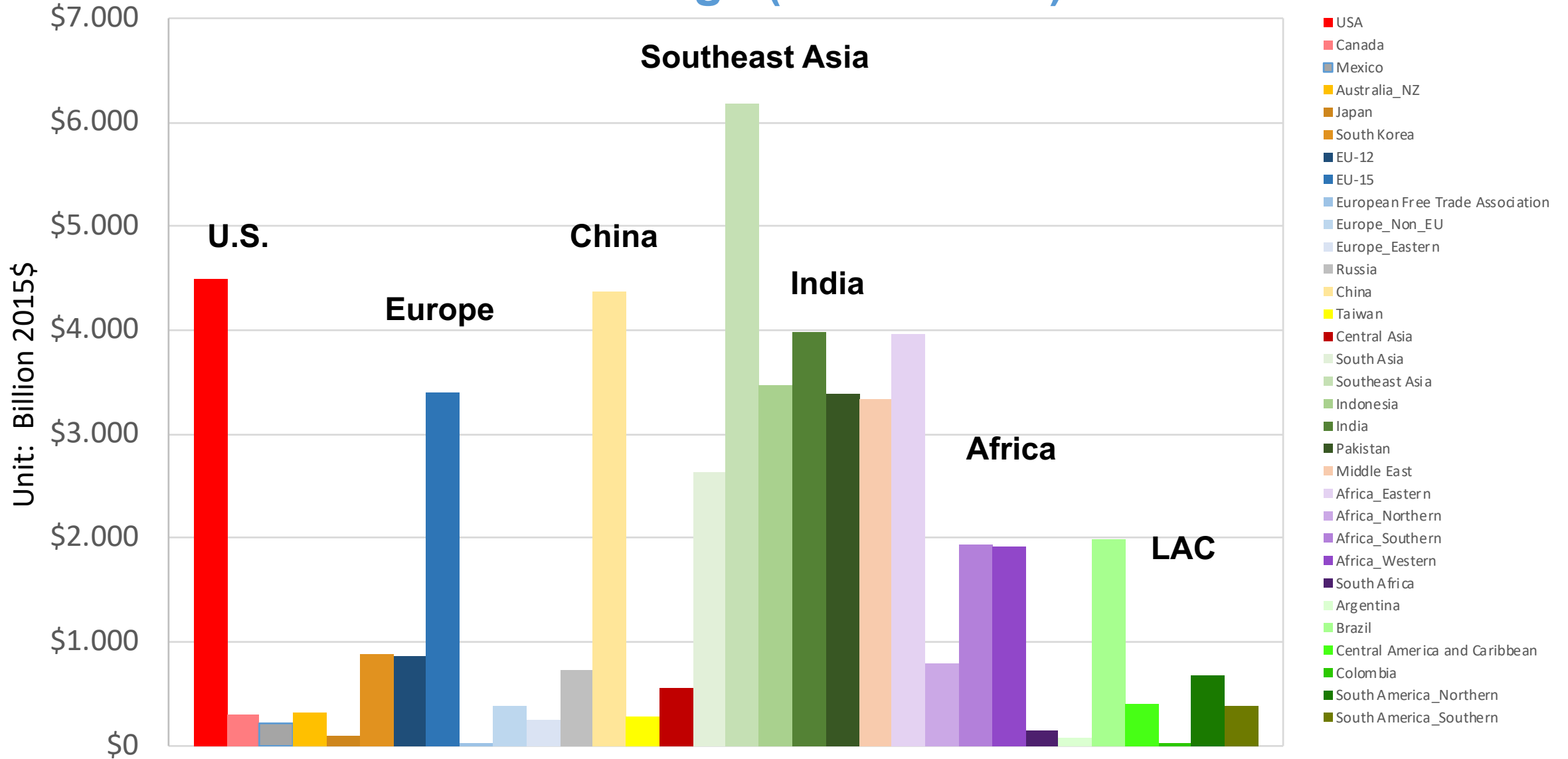


## Percentage Reduction in Cost



# GDP Change by Region – Billion of 2015 US\$

## Net GDP Change (Cumulative)



# How Valuable is Article 6?

Article 6 holds significant potential to reduce cost and enhance ambition

- Everyone could be better off through collaboration
- Estimated potential
  - 2030 ~\$270 billion 2015 US\$
  - 2050 ~\$445 billion 2015 US\$
  - 2100 ~\$900 billion 2015 US\$



Source: [https://unfccc.int/files/focus/long-term\\_strategies/application/pdf/mid\\_century\\_strategy\\_report-final\\_red.pdf](https://unfccc.int/files/focus/long-term_strategies/application/pdf/mid_century_strategy_report-final_red.pdf)

# The Challenges

- **Near-term challenges:**
  - How to translate heterogeneous NDCs into **Internationally Transferred Mitigation Outcomes (ITMOs)**?
  - Can clubs collaborate to extract the benefits without a formal trading regime?
- **Longer-term challenges:**
  - How to create incentives to increase ambition?
  - Can dynamic incentives be developed to increase ambition?
  - Clearly the rules matter—Calvin, et al. showed that seemingly air-tight rules for CDM-types of emissions trading can have perverse macro-outcomes.



## A VISION FOR THE MARKET PROVISIONS OF THE PARIS AGREEMENT



Source:

[https://www.ieta.org/resources/Resources/Position\\_Papers/2016/IET\\_A\\_Article\\_6\\_Implementation\\_Paper\\_May2016.pdf](https://www.ieta.org/resources/Resources/Position_Papers/2016/IET_A_Article_6_Implementation_Paper_May2016.pdf)

**Thank you!**