



# Accelerating Transformational Change: Opportunities and Barriers

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Major Economies Business Forum

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NDCs and the Paris Agreement*  
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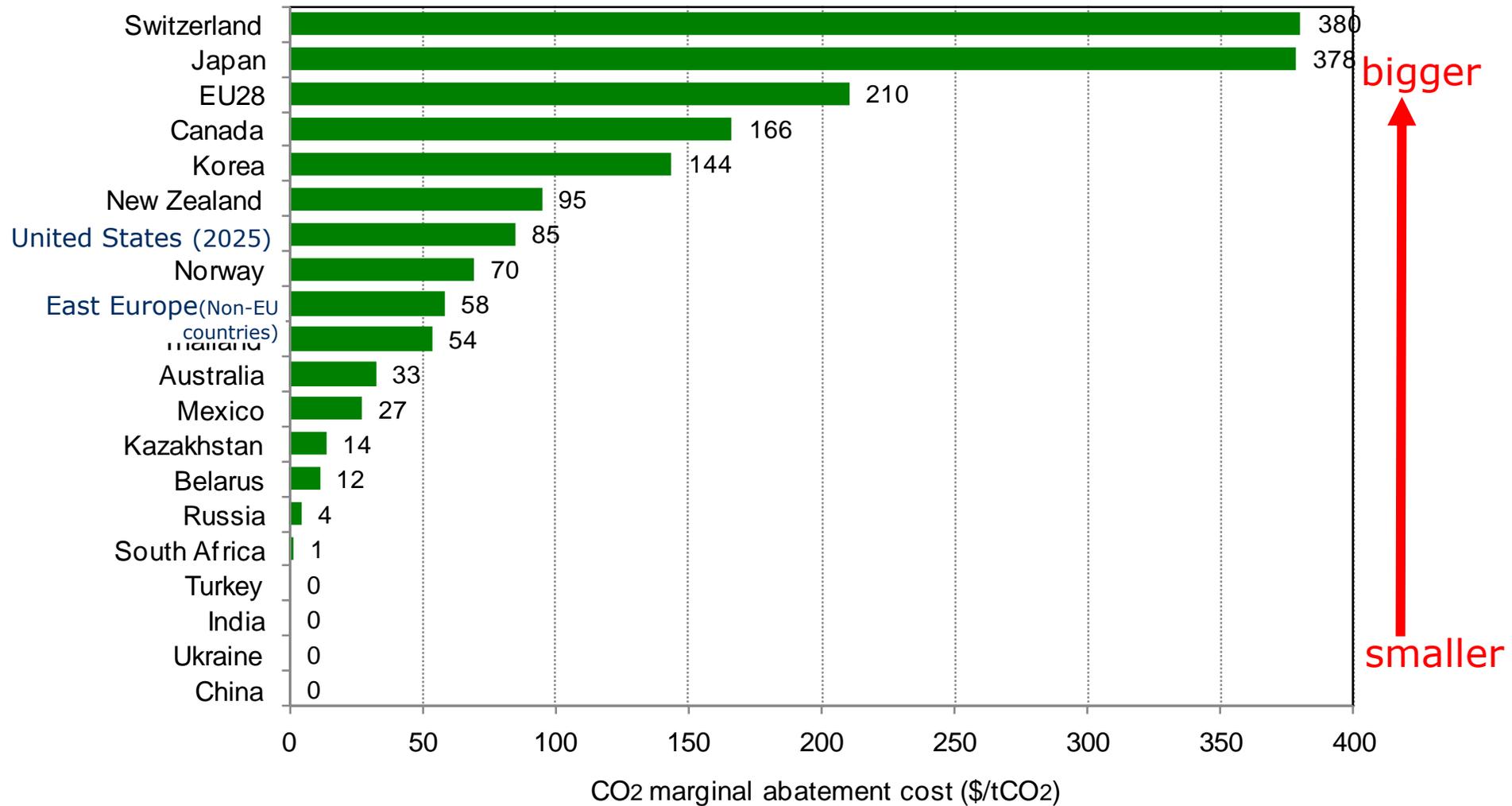
## Model results for Paris Agreement and GHG stabilization

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- Assumed that each INDC was implemented domestically using an ideal, economy-wide GHG tax (theoretically the least cost option)
- Transformed all INDC results to a 2005 base year and outcomes in 2030
- Considered also GHG emissions pathways to 2030, 2050 and 2100 (constrained using a common global GHG tax) to consider outcomes for a range of warming through 2100

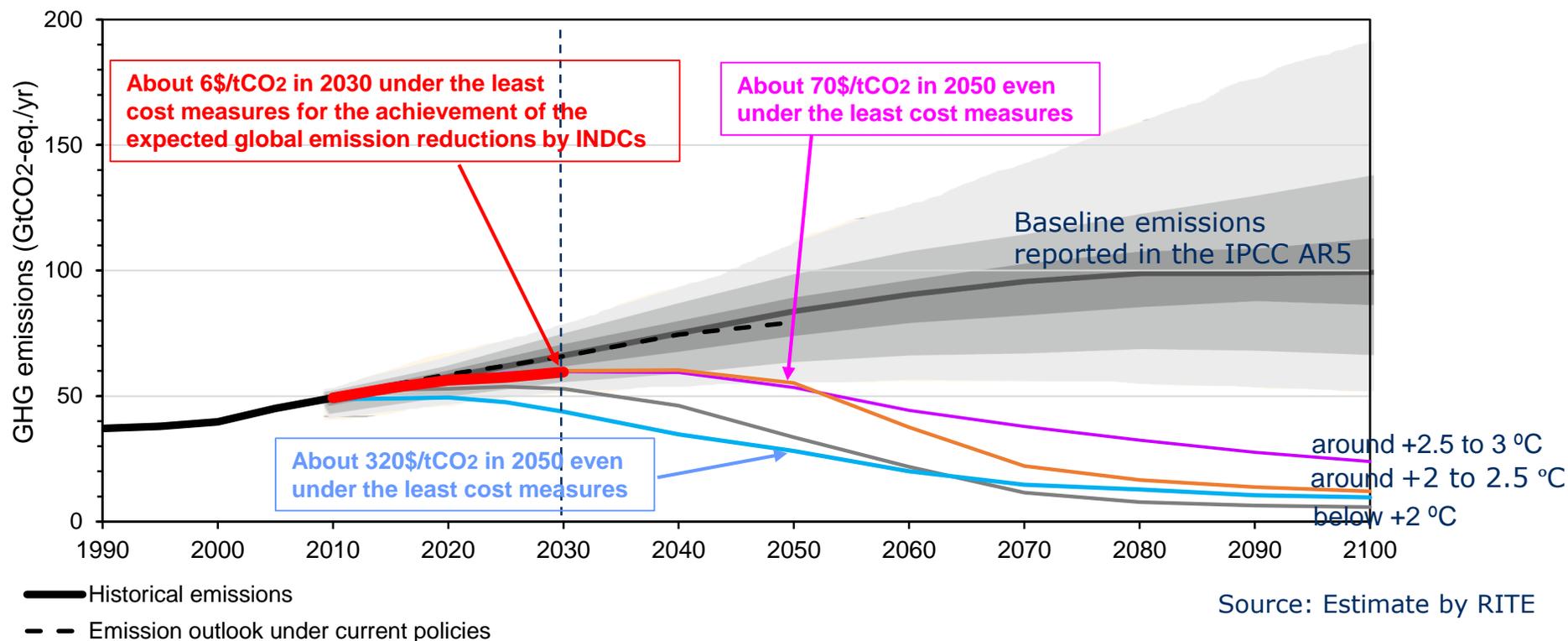
...sample results for domestic and global effects of INDCs

# Comparison of CO<sub>2</sub> marginal abatement costs



INDCs were each implemented using an economy-wide, domestic GHG tax (theoretically the least-cost policy to achieve the pledge)

# Global GHG emissions of the aggregated INDCs & illustrative emission pathways to 2100 toward 2 °C goal



Sample stabilization scenarios using harmonized global carbon tax

— INDC submitted by October 1 (119 countries) assumed to be implemented

Transformational change requires massive, sustained investment to develop and deploy advanced technology systems globally

# Opportunities and barriers to meet challenges

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- Opportunities
  - More efficient and effective policies based on economy-wide GHG-pricing
  - Opportunities for synergy: mitigation, adaptation and development, especially in rapidly growing and least developed nations
  - Rewards for successful innovation
  - Build now the enabling capacities and frameworks to accelerate transformation
  - ...
- Barriers
  - Competitiveness issues in a mosaic world
  - Lack of affordable, scalable mitigation options
  - Confidence to plan, approve and implement massive investments in facilities and infrastructure for advanced technologies
  - ...

Current policy debate fails to communicate the pace and scale of meeting implied transformational change, and associated business risks

# Pace and scale of transformational change

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- Transformational change will require 1000s of multi-billion \$ investments per year, many in technologies that are currently non-commercial
  - Investments in energy supply and distribution need to ~double from ~1 to ~2 trillion \$/year and be sustained for decades
- Investments involve: technology, facilities, infrastructure, supply and value chains, human skill sets
- For the private sector to undertake such groundbreaking and transformational investments will require confidence that:
  - Investments will generate an adequate, risk-adjusted rate of return
  - activities to plan, approve, construct and operate them go forward on schedule
  - proposed long-term policies are sustainable
- Additional challenges:
  - Project inflation when investment environment overheats: higher costs, delayed execution, sub-optimal performance
  - Competitiveness in a mosaic world: harmonized C-tax a chimera
  - Managing transitions of disadvantaged workers, suppliers and the communities where they operate

# Highlights need for steps to accelerate change

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## Identify and address them

- Start an ongoing dialogue (business, government, NSAs) to discuss and understand barriers, promote solutions
- Proactively address them: Build enabling capabilities
  - Research and Innovation to generate and develop technology leads
  - Human capabilities in STEM and other areas
  - Maintain and promote fair and open trade and investment to encourage more rapid global deployment
  - ...

- The response to failure to meet ambitious targets is not to call for yet more ambitious targets....
- Rather, it is to create options and capacity for better solutions

# Thank You

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