AWG-KP Pre-sessional Events

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The Sectoral Approach to Analyze Global Mitigation Potential

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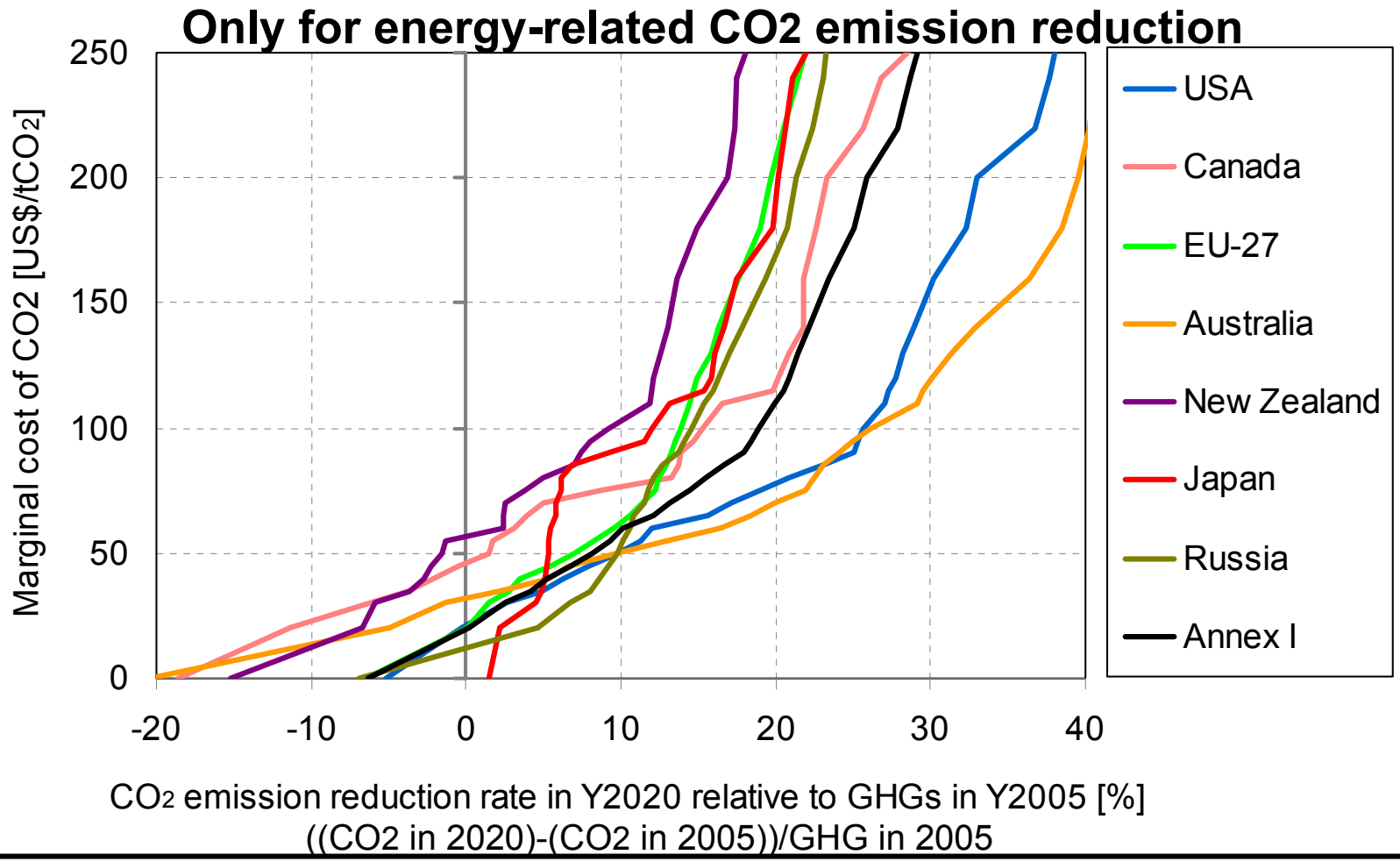
DNE21+ Model and cases assumed

- Linear programming model (minimizing world energy system cost)
- Bottom-up and technology-rich model
- World divided into 54 regions
- Analyzing global reduction potential
- Analyzing reduction potential under the following cases

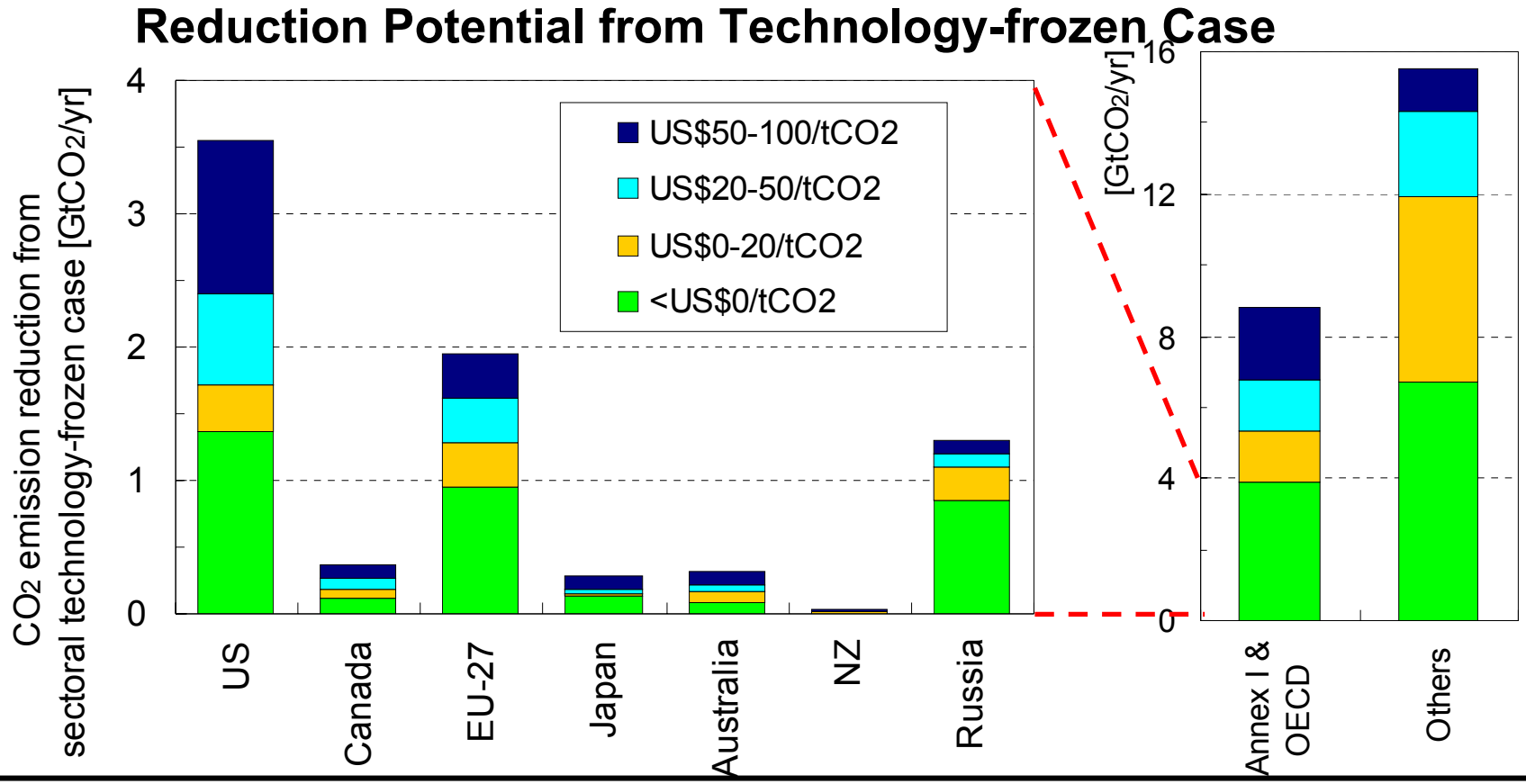
Case	Definition
echnology- ozen Case	• **CO_2 intensity by sector** is fixed at the level of 2005 •This case is a hypothetical scenario to clarify emission reduction potential from current technology level.
egative-Cost- chieved NCA) Case	• Emissions Scenario where **all the emission reduction measures a** **negative costs** are achieved.

Marginal cost curve for Annex I countries in 2020



- **Marginal abatement cost (MAC) curves differ among countries.**
- **MAC curve for Japan is relatively steep particularly at the cost below 100$/tCO2 due to high energy efficiencies in most of the energy intensive sectors, which is driven by past investments**

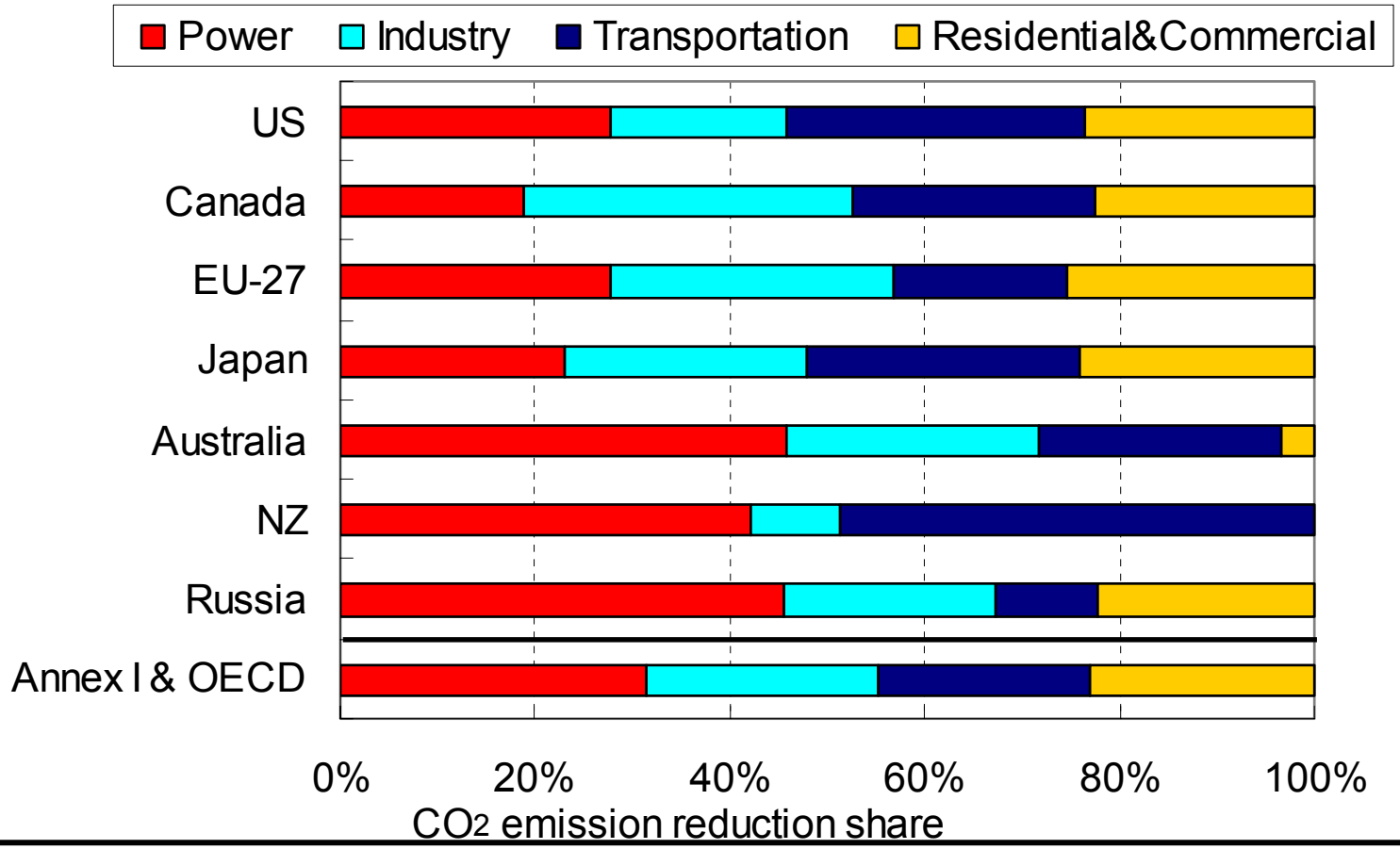
Emission Reduction Potential in 2020



- There exists large reductions potential at negative costs (3.9Gt) and relatively low-costs (<20$/tCO2) (1.4Gt) in Annex I & OECD countries.
- These are around 60 % of the total reduction potential.
- Reduction potential in US, EU27 and Russia at marginal costs of below20$/tCO2 (4.1Gt) accounts for about 80% of those in Annex I & OECD countries (5.3Gt)

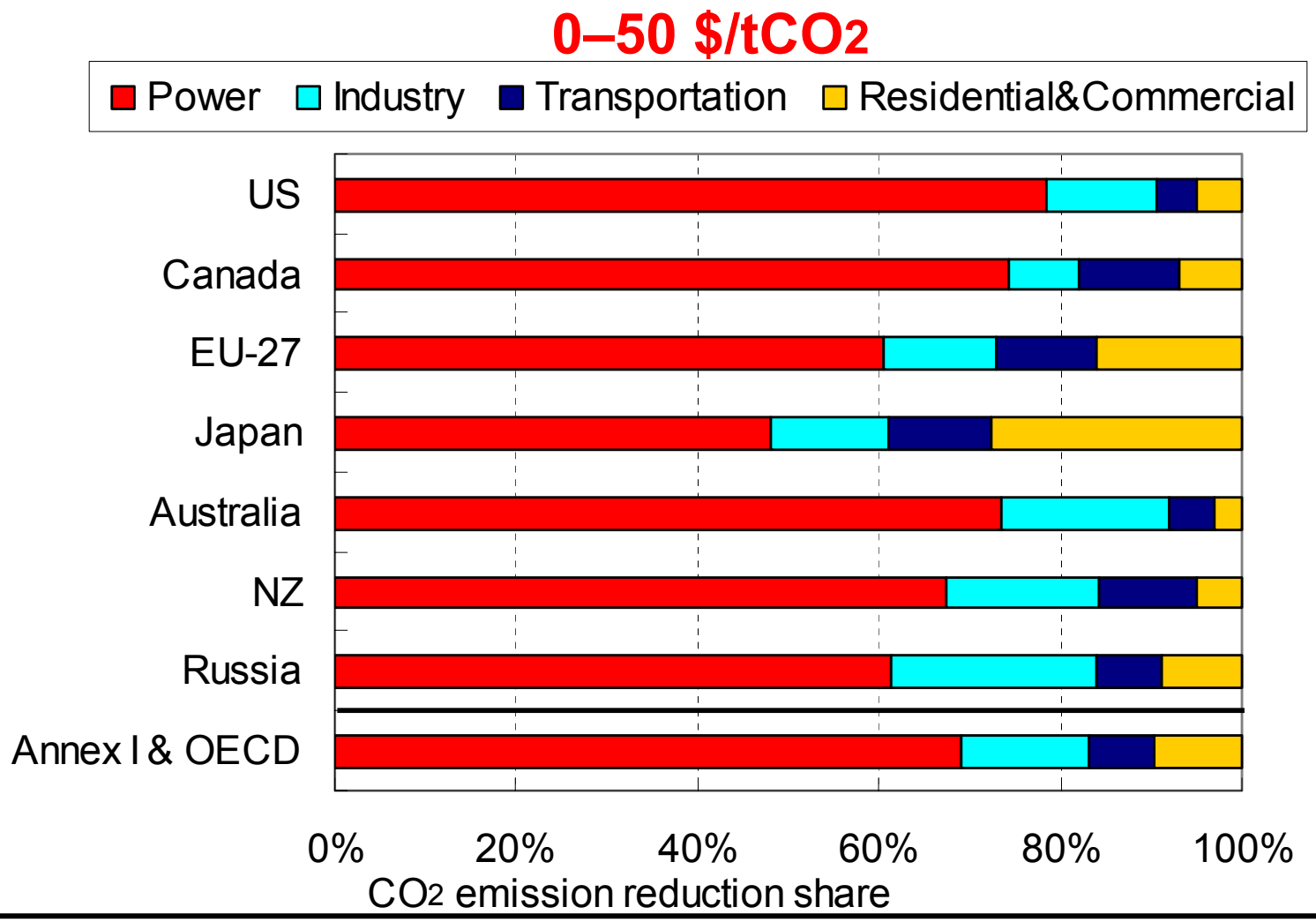
Sectoral Emission Reduction Potential in 2020

≤0 $/tCO2 (from Technology-frozen Case)



- Large reduction potential at negative costs exists in every sector in Annex I & OECD countries.
- These reduction potential can be achieved by energy-saving measures.

Sectoral Emission Reduction Potential in 2020



- Around 70% of the reduction potential mainly exists in power sector in Annex I & OECD countries.
- This situation is same in most of the Annex I & OECD countries.

Conclusion (1/2)

- By introducing the two Cases, **Negative-Cost-Achieved Case** and **Tech.-Frozen Case**, emission reduction potential at negative costs can be estimated besides those at positive costs.

- Large reduction potential at negative costs still exists in various sectors in Annex I & OECD countries. Policies and measures for energy efficiency are the keys.

- Reduction potential at fairly low positive cost is quite large in power sector of Annex I & OECD countries.

  Low-carbon and non-carbon policies & measures in power sector are also important.

Conclusion (2/2)

- There exists larger reduction potential at negative and low cost in non-Annex I regions.

- **Cooperative measures** and actions between developed and developing countries would help to achieve the above reduction potential.

Thank you for your attention.