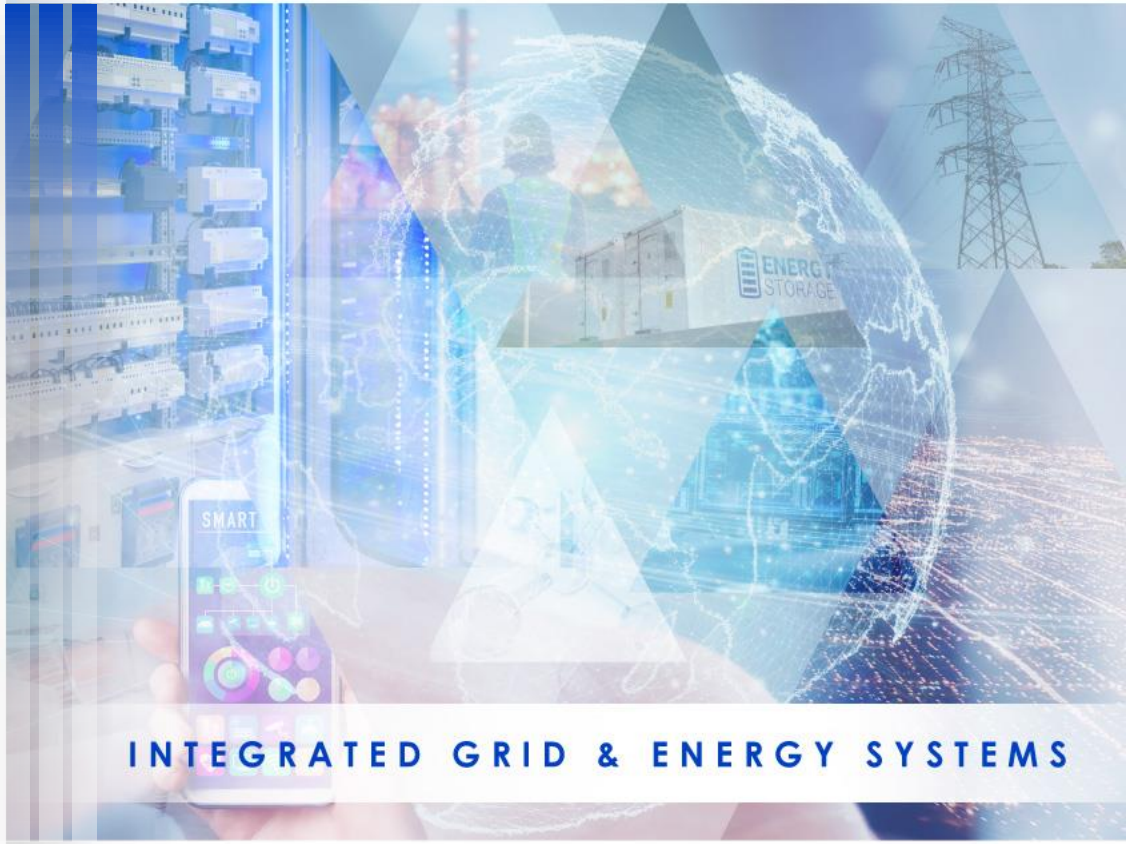
International Emissions Reduction Cooperation Opportunities for the Electric Sector and Companies

Steven Rose
Energy Systems and Climate Analysis Research Group



20th Annual IEA-IETA-EPRI Emissions Trading Workshop
October 23, 2020

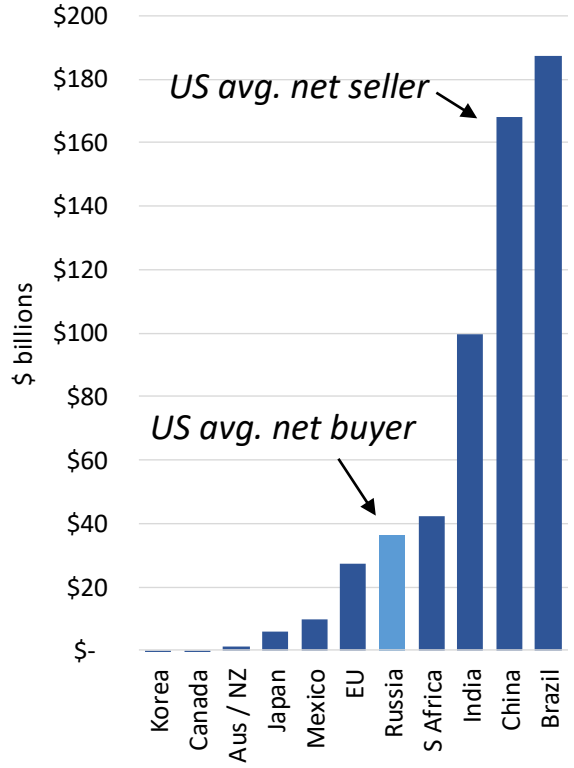
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EPRI's previous international cooperation insights

- Using **EPRI's MERGE** model – a global integrated energy-economy-climate model
- Exploring tractable international **partnership** (club) possibilities – bi-lateral, tri-lateral, and more

- **Key insights**
  - **The value of international cooperation increases with global ambition**
  - **International emissions trading partnerships can be valuable**
    - Reducing societal costs and offering savings to citizens
    - As an incentive to increase global participation and ambition
    - Reducing the cost of delayed action
    - Increasing the likelihood of being able to limit warming to below 2˚C
  - **Technology availability will likely impact partnership opportunities**
    - Mitigation technology availability affects trade positions, country benefits, market value
    - Cooperation has greater value when mitigation options are more limited
  - **There are strategic cooperation issues to keep in mind**

Benefits to US households of potential international partnerships (net present value)



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Today

- Exploring the decarbonization role, opportunities, and risks for the **electric sector** with international cooperation

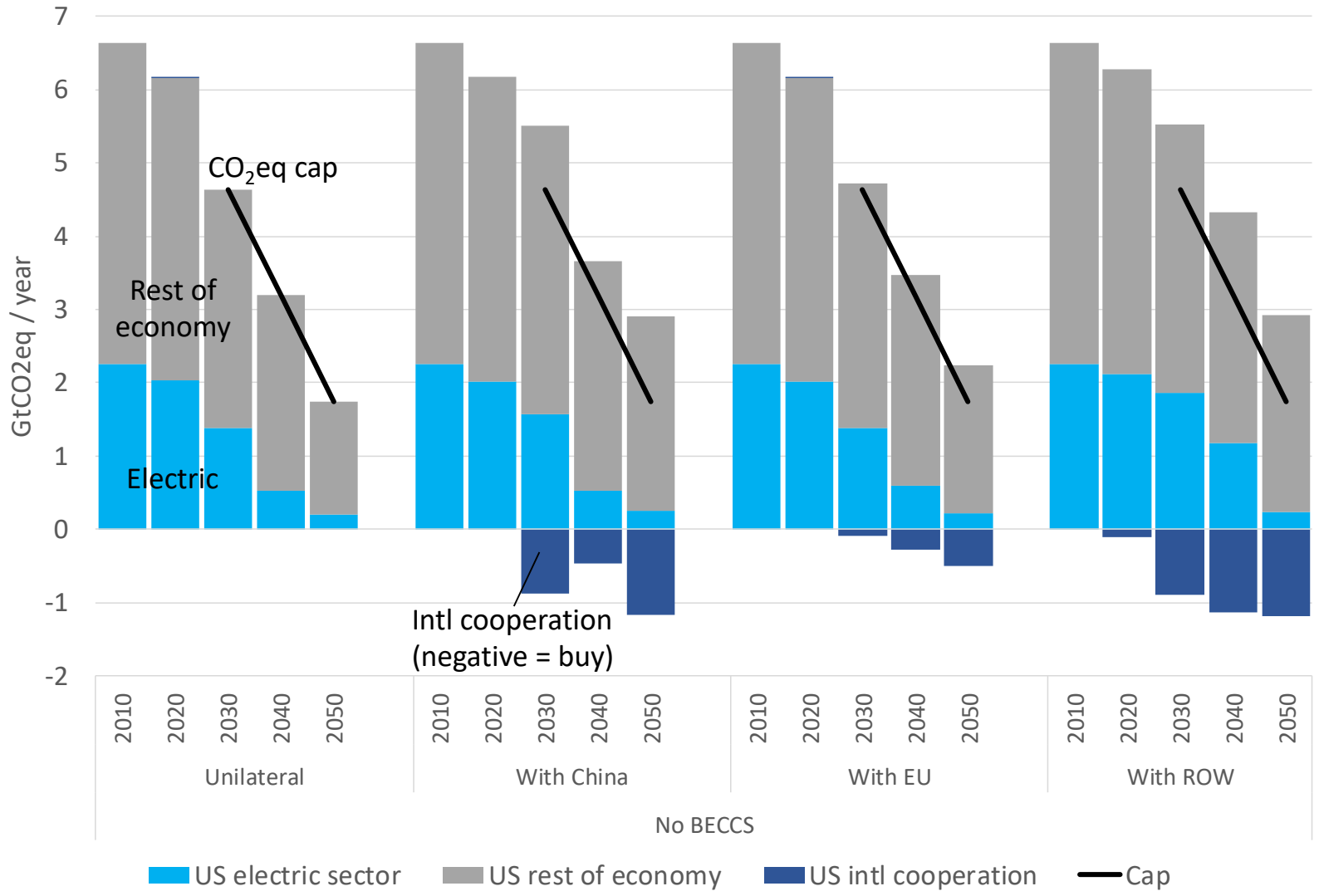
- Exploring **company** perspectives on cooperation

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US transition affected by international cooperation

e.g., US reductions 80% by 2050 w/o and w/ international partnerships

International cooperation affecting emissions transitions for all sectors, as well as electric sector role in economy-wide reductions



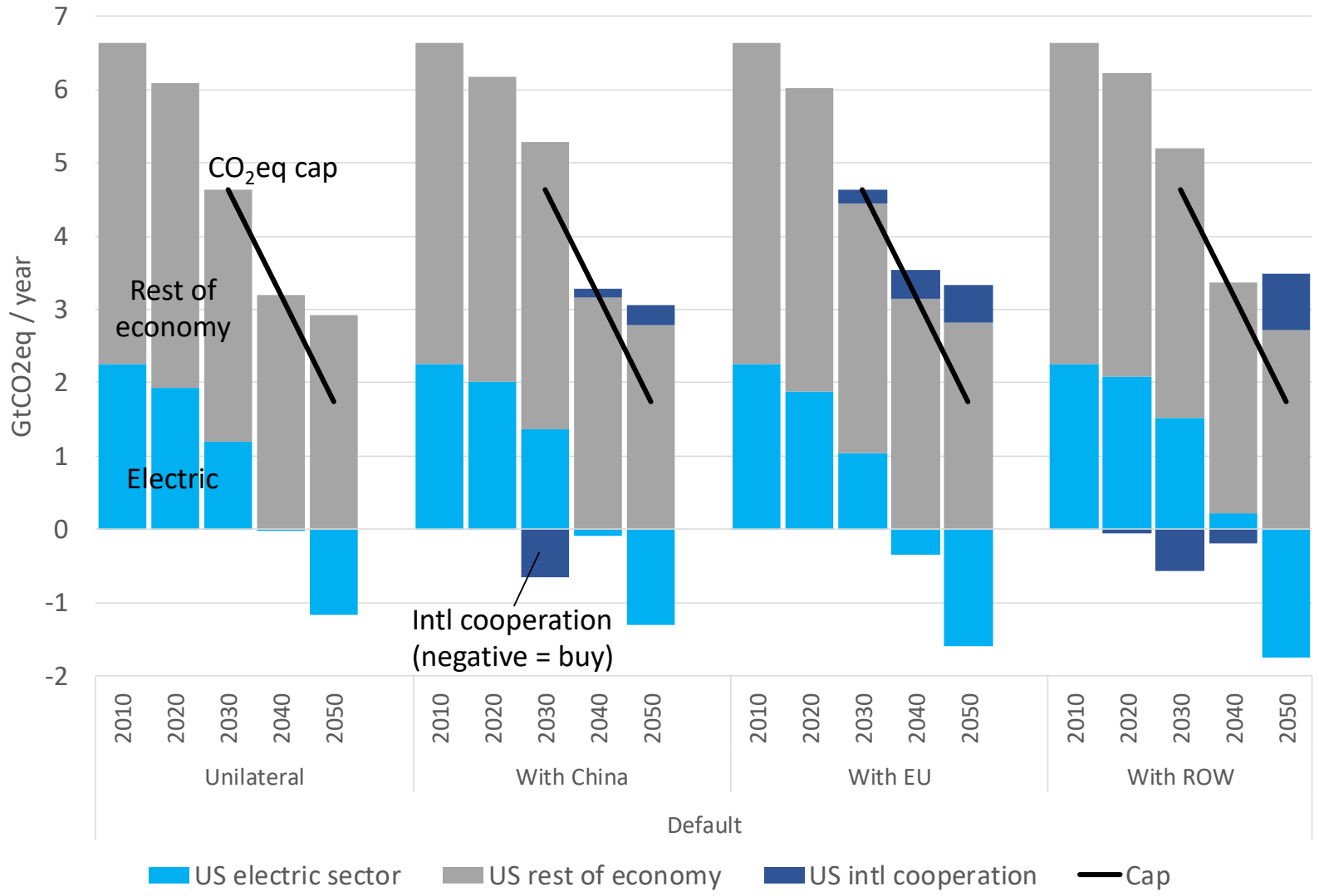
2050 ~80% below 2005 and BECCS unavailable

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US transition affected by international cooperation & technology

e.g., US reductions 80% by 2050 w/o and w/ international partnerships & BECCS available

Electric sector's role and opportunities change when bioenergy with CCS (BECCS) available

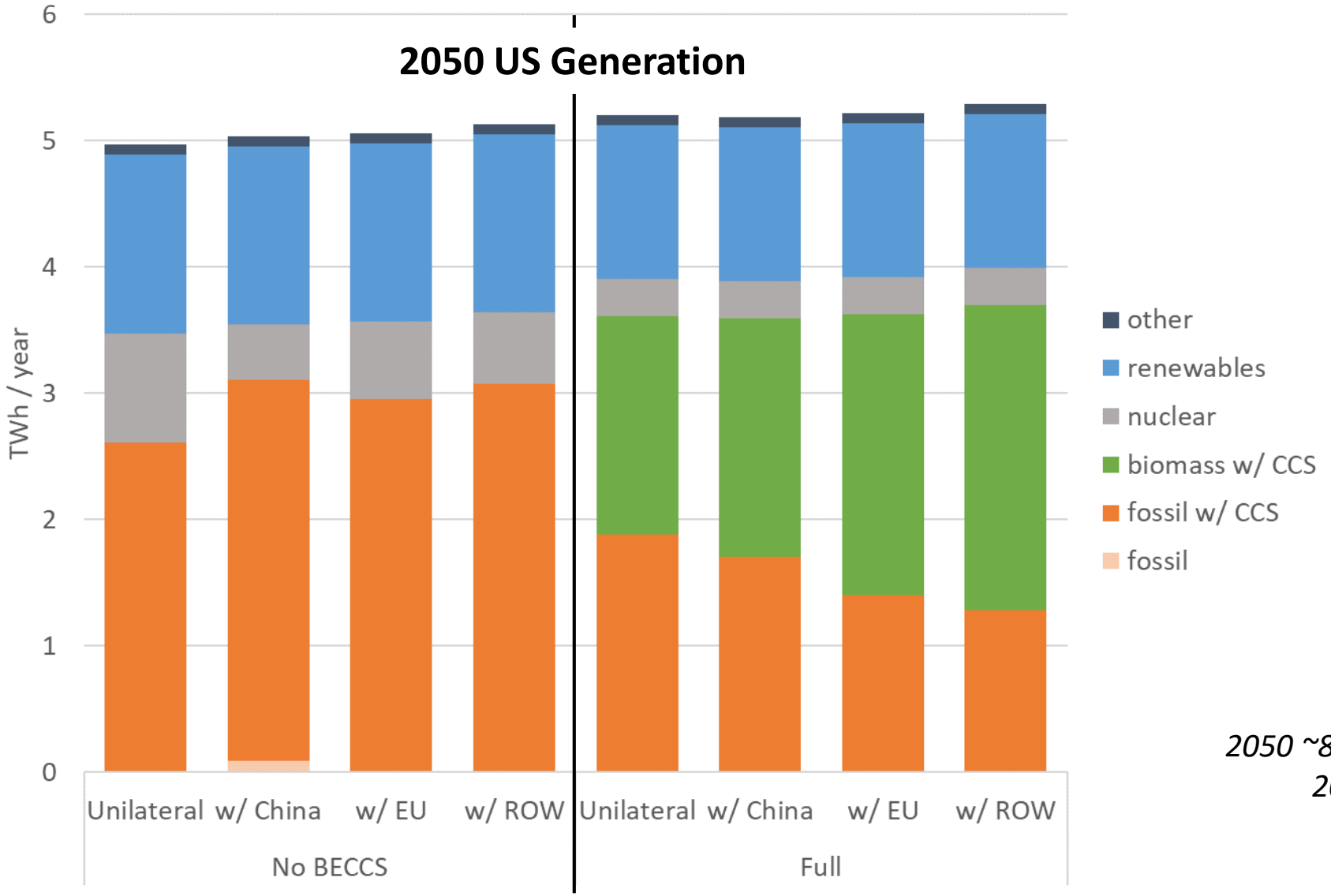


2050 ~80% below 2005 and BECCS available

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US electricity generation affected by cooperation & technology
(e.g., US reductions 80% by 2050)

International cooperation notably impacting 2050 generation portfolio—how depends on partner and technology

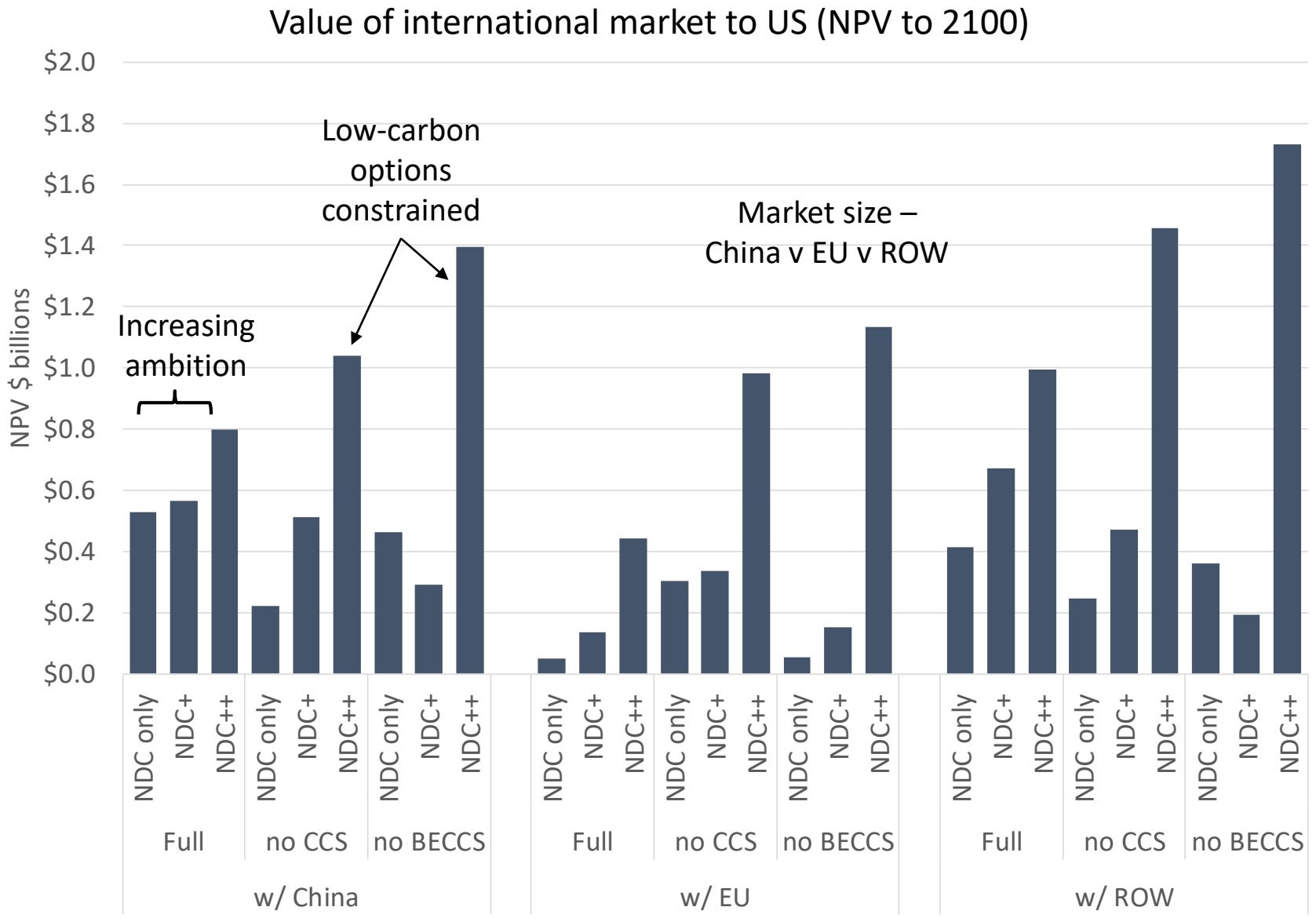


2050 ~80% below 2005

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Value of international cooperation to the US

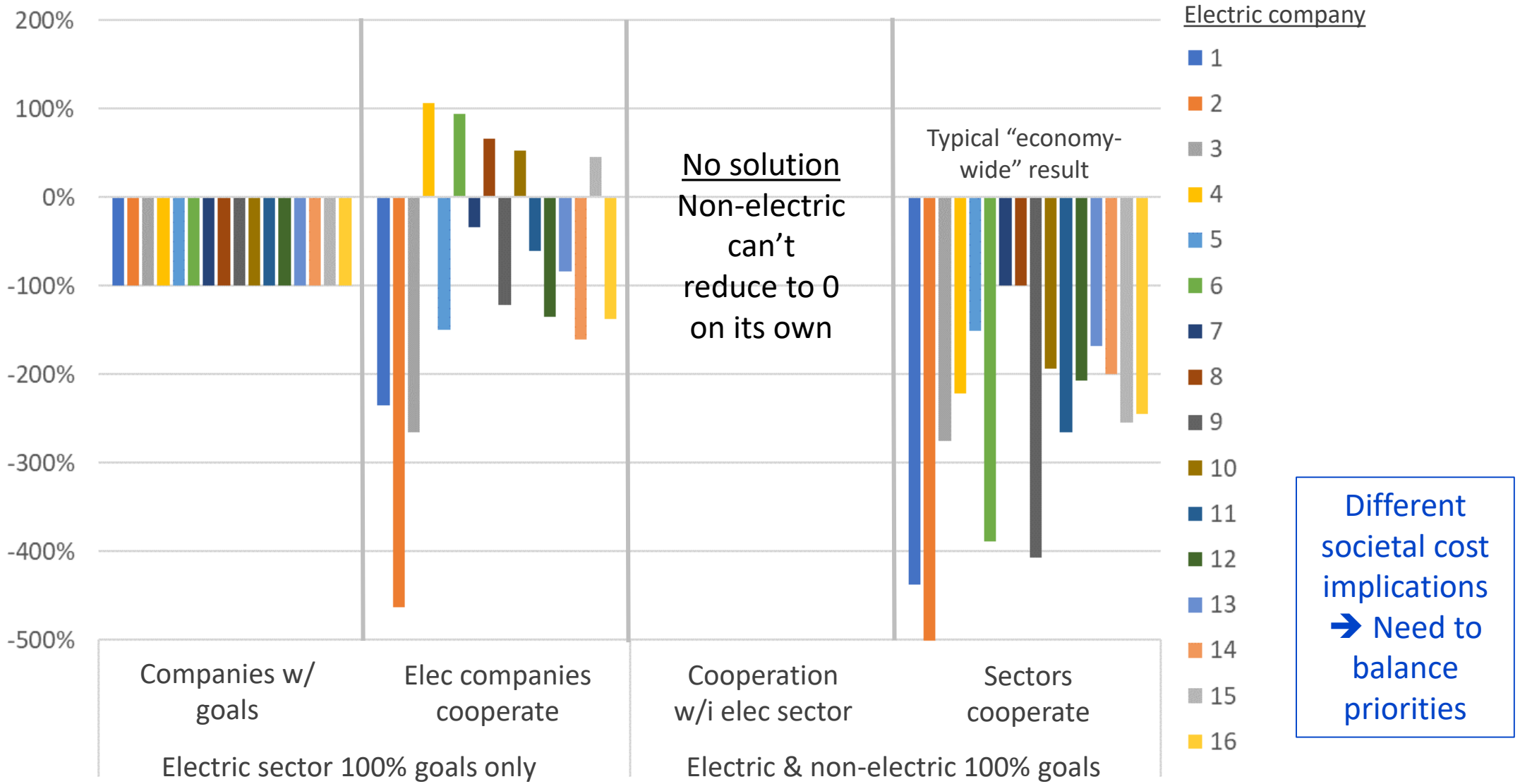
Value to US citizens in revenues and cost reductions. Value increases with policy ambition, low-carbon options constraints, and market size



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Cooperation affects company strategy, costs, & goal attainment

2050 CO_2 reductions for illustrative electric companies with **net zero goals** but different cooperation opportunities



Different societal cost implications → Need to balance priorities

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Concluding remarks

- International cooperation's value to the electric sector increases with ambition
- International cooperation can impact the electric sector's role within a country
- Low-carbon generation options for companies shape cooperation opportunities
- Cooperation affects company strategy, costs, and goal attainment
- Uncertainties, risks, and enablers for electric utilities to consider: ambition level, cooperation type & partners, generation options, and policy design
- Finding cooperation benefits to electric sector, other sectors, companies, and citizens

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Together...Shaping the Future of Electricity

Steven Rose
+1-202-293-6183
srose@epri.com

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