

Trois cas d'étude

Plafonnement de la production pétrolière : hypothèses et implications

Jean-Charles Hourcade

Déploiement des énergies renouvelables en Europe : place de la France, question des pays intensifs en carbone

Nadia Maïzi

Chine : adhésion à une politique carbone à quelles conditions ?

Jean Charles Hourcade et Nadia Maïzi



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Chine : adhésion à une politique carbone à quelles conditions ?

Sandrine Selosse, Edi Assoumou, Nadia Maïzi (CMA)

Celine Guivarch, Jean-Charles Hourcade (CIRED)



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Long term planning with TIAM-FR

- TIAM-FR (Times Integrated Assessment Model) developed for the world (15 regions)
- Assessment of COP15 country pledges :
 - induced global target at a world level ?
 - local circumstances: feasibility, plausibility of targets ?



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Ongoing discussions

	Regions	Reference year	2020 pledges
COP15	Western Europe	1990	30%
	Japan	1990	25%
	US	2005	17%
	China	2005	40%

42% by 2030
compared to 2005

Carbon
intensity



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ParisTech
INSTITUT DES SCIENCES ET TECHNOLOGIES
PARIS INSTITUTE OF TECHNOLOGY

Reference data for CO2 emissions

	1990	2005
	UN Data (Gt)	UN Data (Gt)
CHI	2.415	5.626

□ China:

- COP 15: $2020_{/1990}$: +292% and $2050_{/1990}$: +485%
- Post COP 15: $2020_{/1990}$: +161% and $2050_{/1990}$: +485%
- Post COP 15 (2): $2020_{/1990}$: +109% and $2050_{/1990}$: +86%



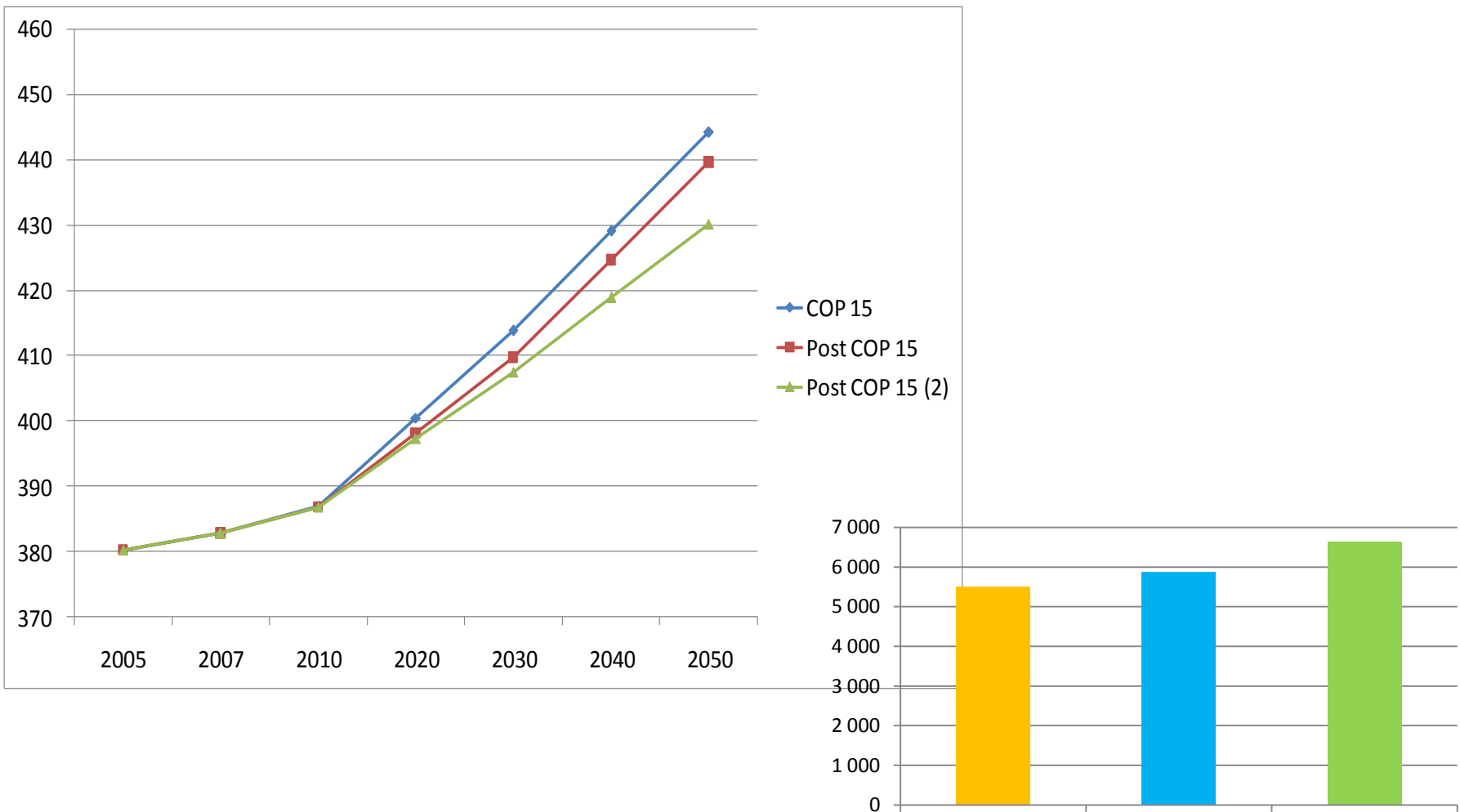
Deriving global targets from country pledges

Regions	Ref. year	Target COP 15		Target Post COP 15		Target Post COP 15 (2)	
		2020	2050	2020	2050	2020	2050
Australia	2005	NO	NO	34%	80%	34%	60%
Canada	2005	NO	NO	34%	80%	34%	60%
China	2005	40% <i>(carbon intensity)</i>	80% <i>(carbon intensity)</i>	60% <i>(carbon intensity)</i>	80% <i>(carbon intensity)</i>	10%	20%
Japan	1990	25%	80%	25%	80%	25%	80%
United States	2005	17%*	80%	34%	80%	34%	60%
Western Europe	1990	30%	80%	30%	80%	30%	80%



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Leads worldwide to the following ppm



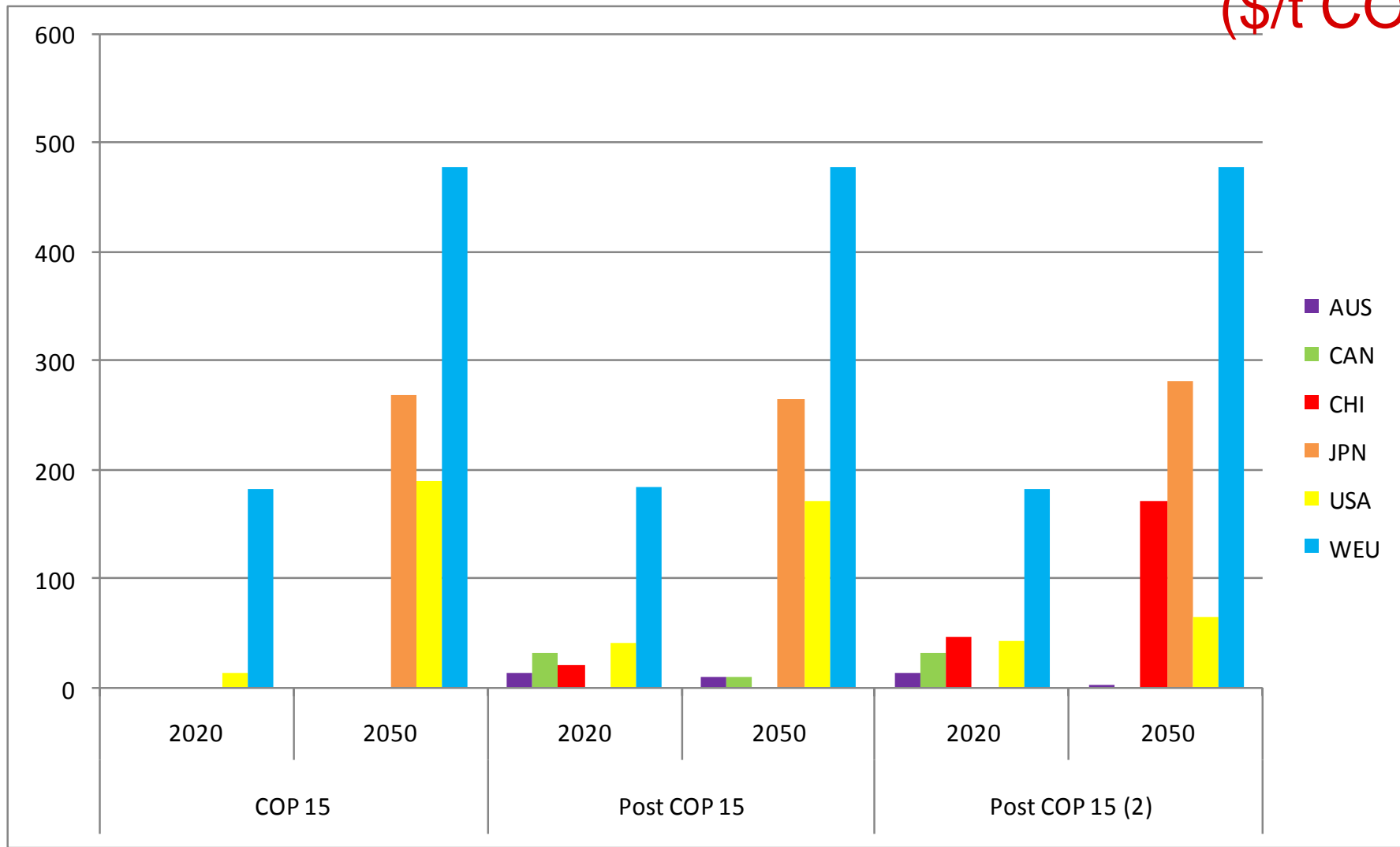
Total discounted cost (billion 2005 USD)



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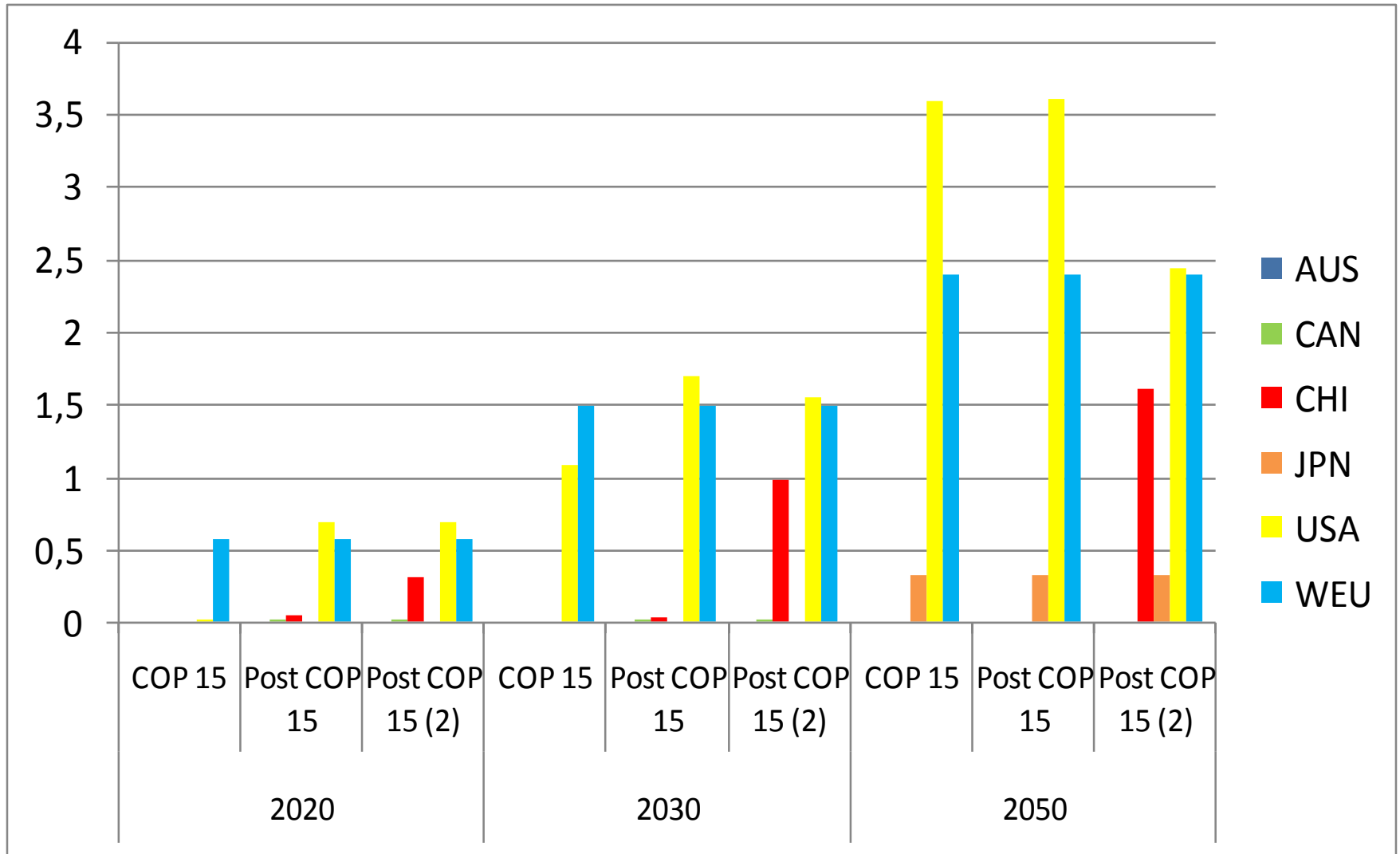
Regional carbon marginal costs

(\$/t CO₂)



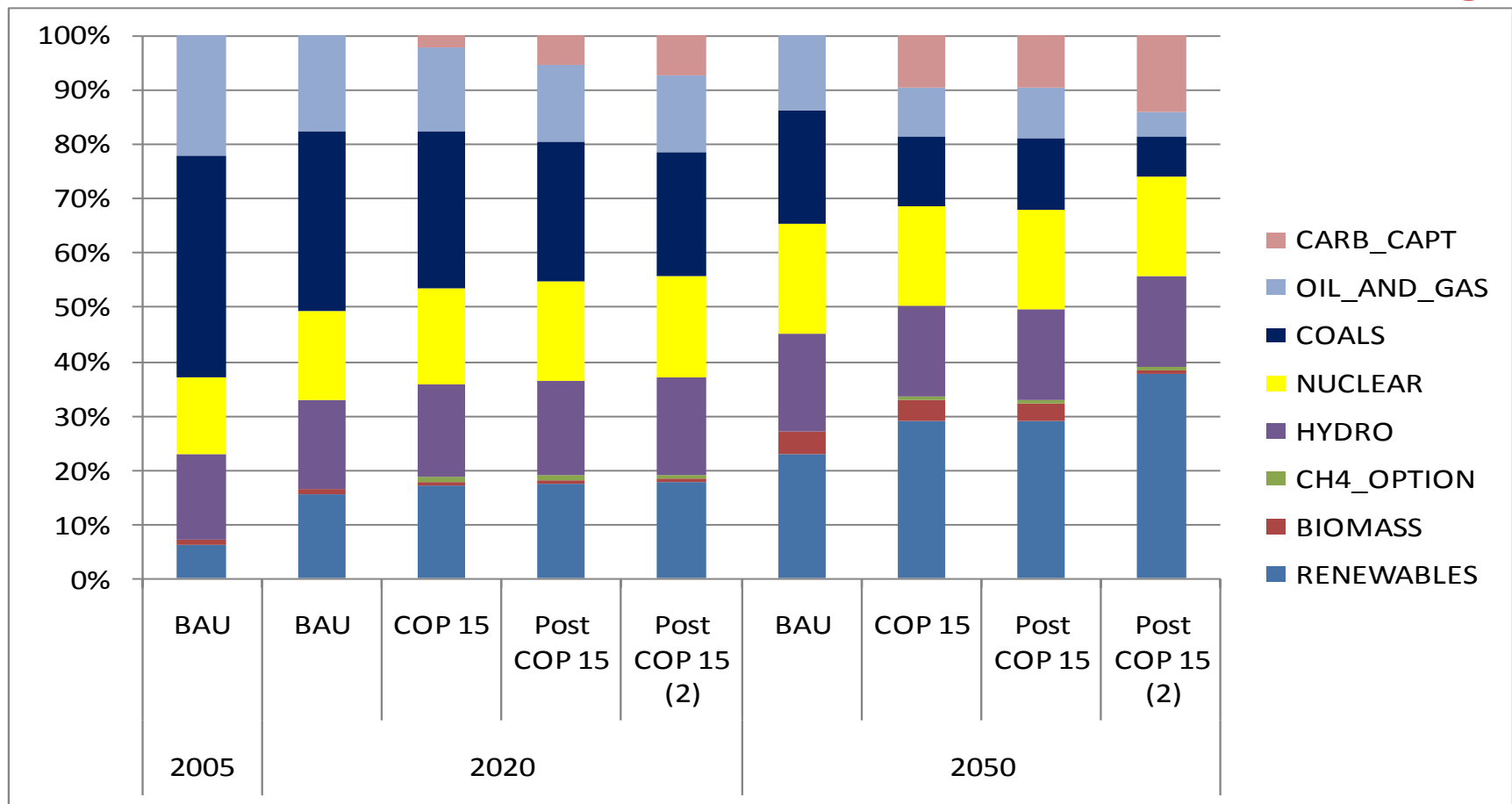
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Regional CO2 storage (Gt)



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Electricity production by technology

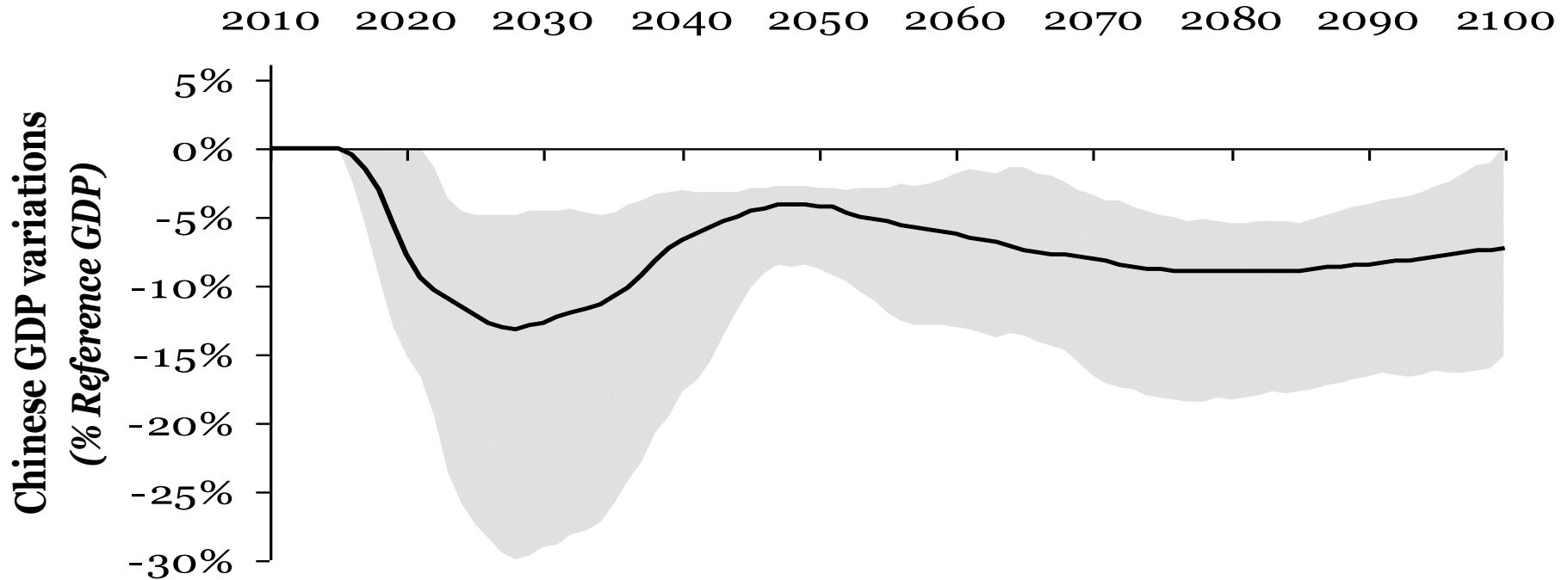


Are the 6000 TWh based on CCS technologies needed to avoid 7 Gt of CO₂ emissions feasible (Norway 1Mt) ?



Why China will reject a carbon price policy ?

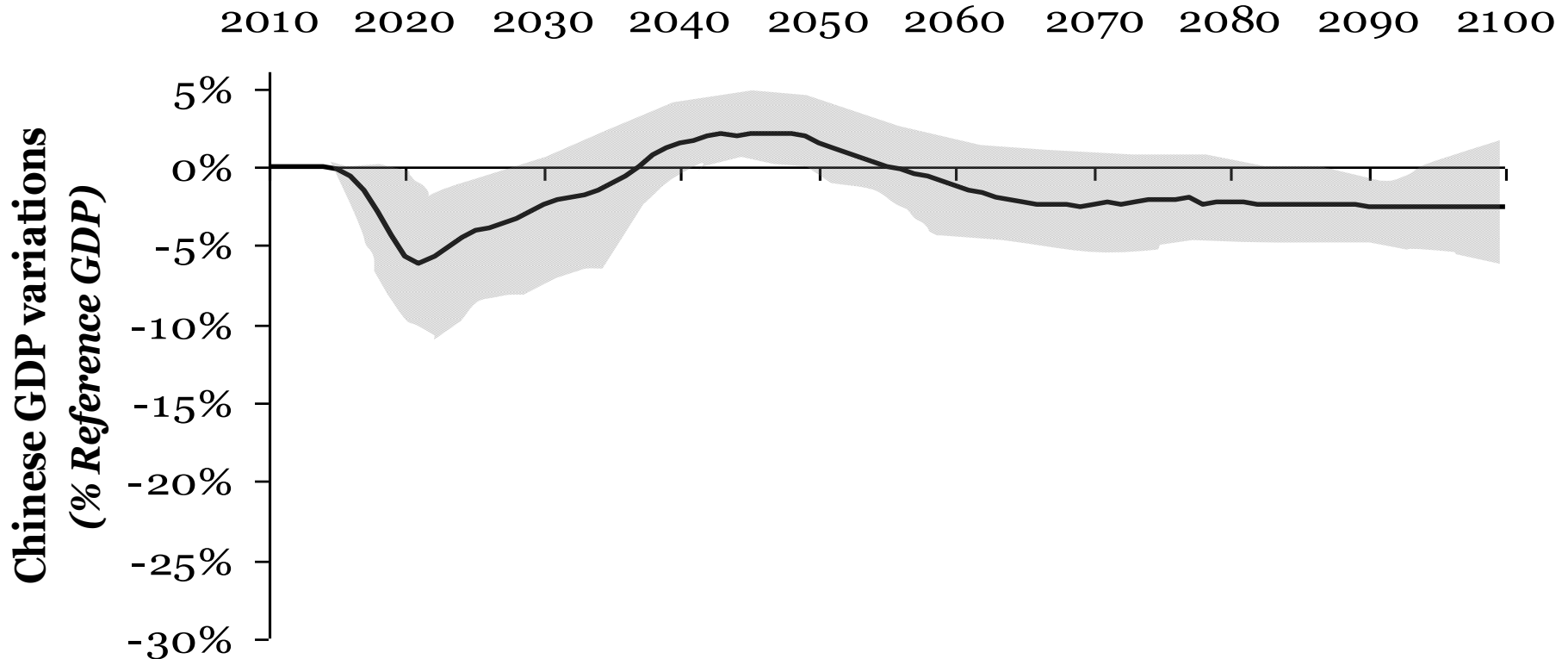
'Carbon price only'



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Why China will prefer double dividend of climate policies?

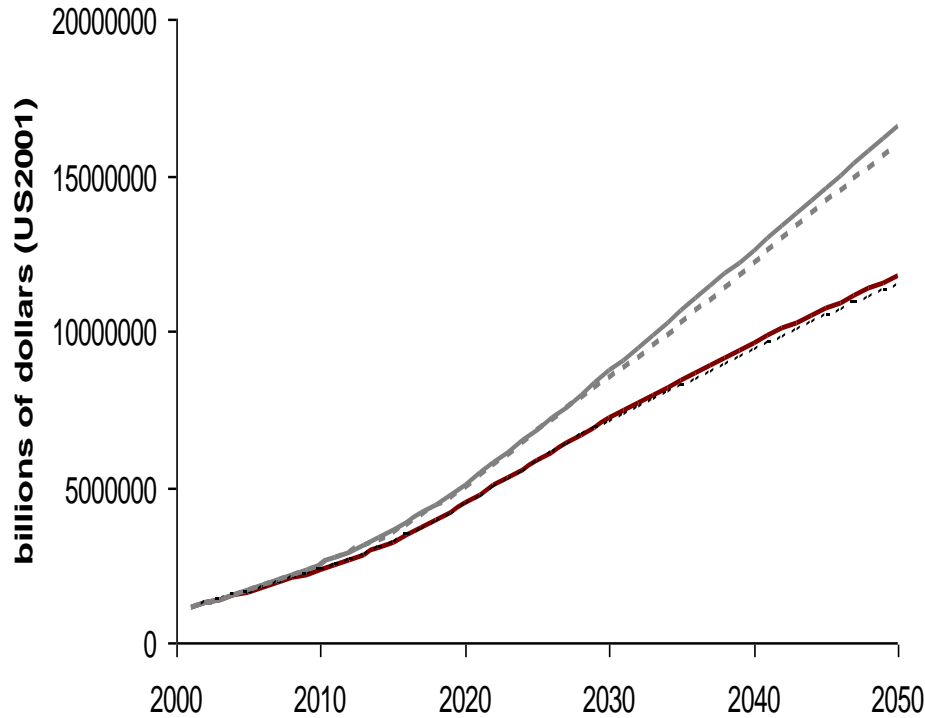
infrastructure policies and fiscal reform



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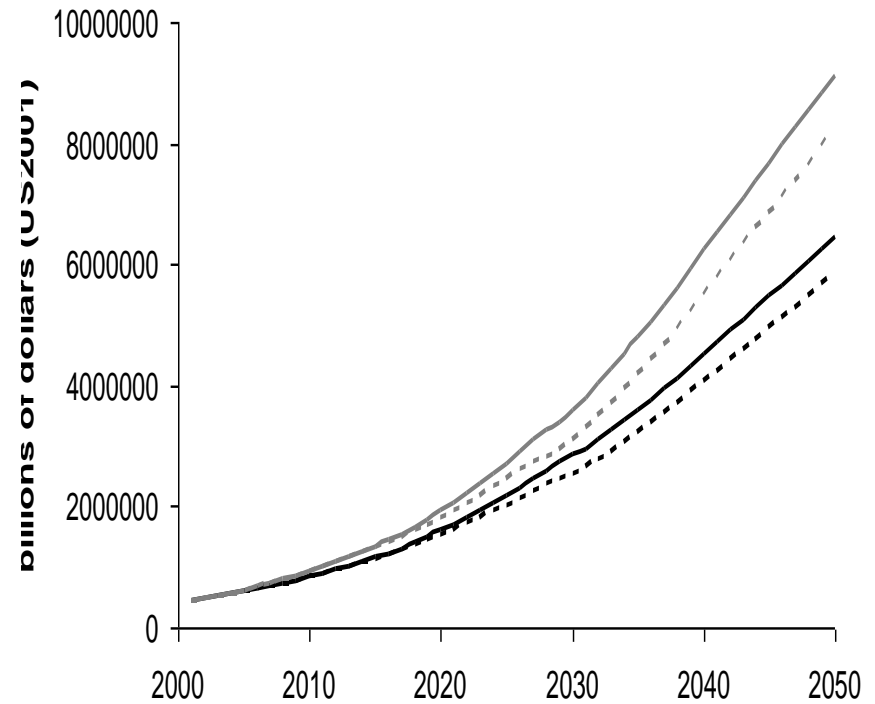
Why China and India should address the climate problem? An issue of energy security (1/2)

Real GDP - China



— Low Growth — High Growth
..... Low Growth + energy frictions - - - High Growth + energy frictions

Real GDP - India



— Low Growth — High Growth
..... Low Growth + energy frictions - - - High Growth + energy frictions

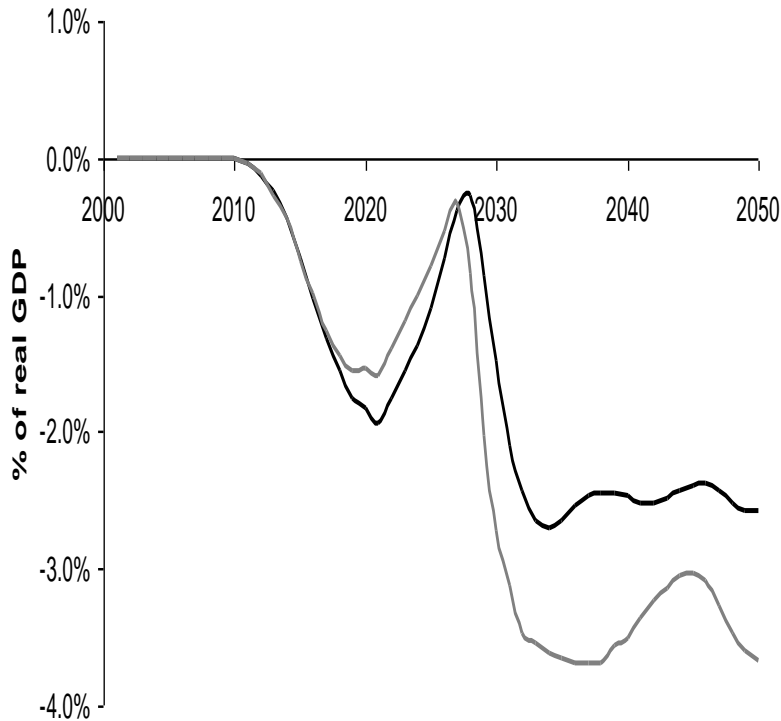


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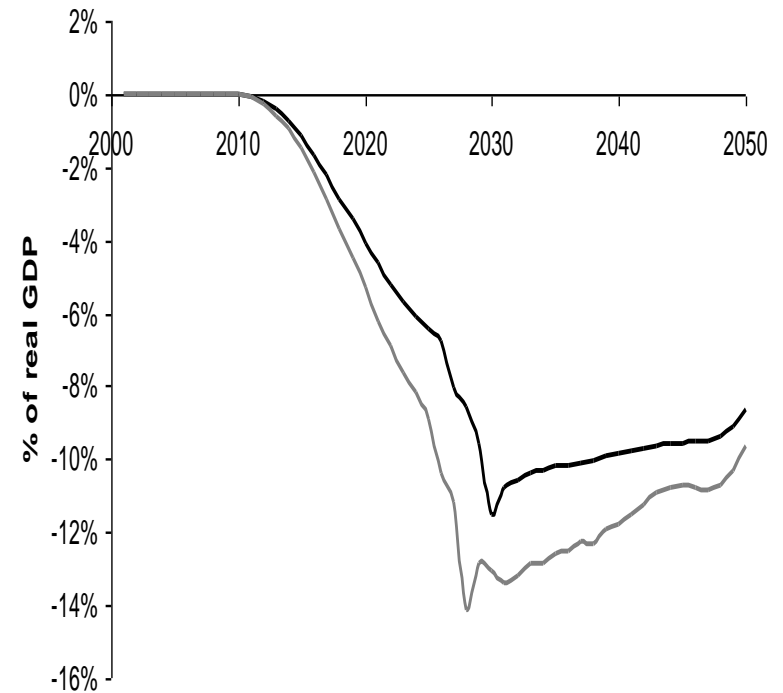
Why China and India should address the climate problem? An issue of energy security (2/2)

Real GDP losses - China

Real GDP losses - India



— Low Growth + energy frictions
— High Growth + energy frictions



— Low Growth + energy frictions
— High Growth + energy frictions



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ANNEX



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Regions	1990	2005
	UN Data (Gt)	UN Data (Gt)
AU	0.316	0.396
CAN	0.450	0.560
CHI	2.415	5.626
JPN	1.172	1.300
USA	4.865	5.841
WEU	2.352	3.417

