

Beyond the financial crisis: Regional energy policy and global carbon constraints

SIDE EVENT " COP 15 " Copenhagen
Climate Change Conference 2009



Chaire Modélisation prospective
au service du développement durable

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ParisTech Chair Modeling for sustainable development

www.modelisation-prospective.org



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Welcome address and keynotes about the ParisTech Chair Modeling for sustainable development

Vincent MAZAURIC, Principal Scientist, Schneider Electric

From announced targets to local circumstances: Europe versus France

Nadia MAÏZI, Professor, MINES ParisTech, co-responsible of the ParisTech Chair Modeling for sustainable development

Meaning of "targets" for India: the 'bifurcation' challenge

Priyadarshi SHUKLA, Professor at the University of Ahmedabad, Convening lead author IPCC FAR

The Brazilian program and the relative role of energy and non energy sectors

Emilio La ROVERE, Professor at COPPE UFRJ, Lead author IPCC FAR

What 'climate policy' means in the 'sub-saharian' countries

Youba SOKONA, General secretary of OSS, Member of the IPCC Bureau AR5

Climate Policy After Copenhagen: a focus on Europe and the Middle East and Northern Africa region

Emmanuele MASSETTI, CMCC and FEEM

The missing device: problem of climate finance

Jean-Charles HOURCADE, Director of CIRED, co-responsible of the ParisTech Chair Modeling for sustainable development, Convening lead author IPCC TAR and FAR

Open discussion with the audience (30 min)



From announced targets to local circumstances: Europe versus France

Nadia Maïzi, Edi Assoumou, Sandrine Selosse



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Through a modeling approach

- Linking technological (TIAM-FR and TIMES) and economic issues (IMACLIM)
- Assessment of **feasible and plausible scenarios** in order to address climate change issues



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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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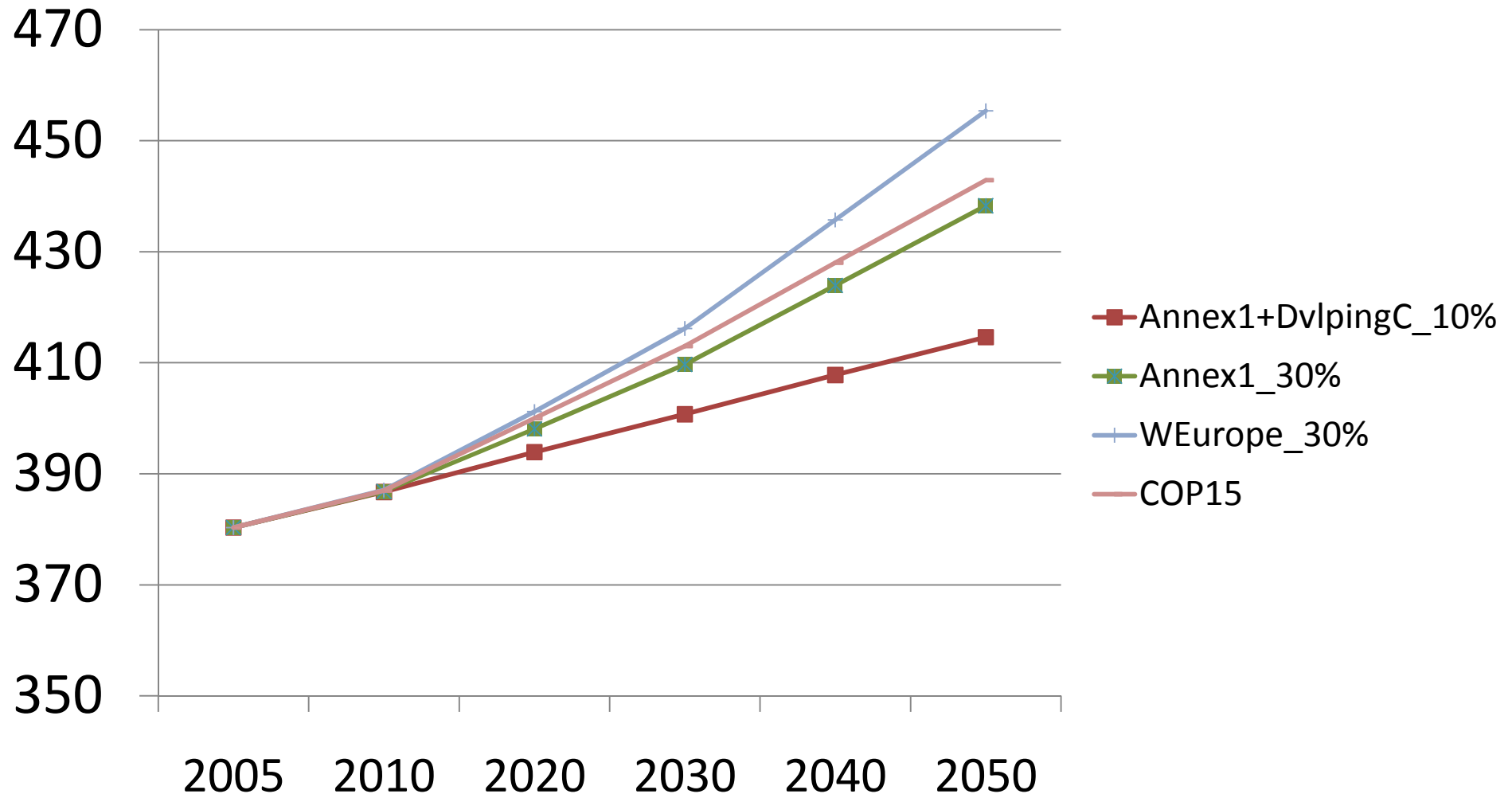
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Deriving global targets from country pledges

Assessed scenarios		Regions	2020 target	2050 target	Ref. Year
Western Europe	WEurope_30%	Western Europe	30%	80%	1990
Developed countries	Annex1_30%	Western Europe, USA, Japan, Canada, Australia	30%	80%	1990
Developed countries + China + India	Annex1+DvlpingC_10%	Western Europe, USA, Japan, Canada, Australia + China, India	30% (Annex1) + 10% (China, India)	80% (Annex1) + 20% (China, India)	1990

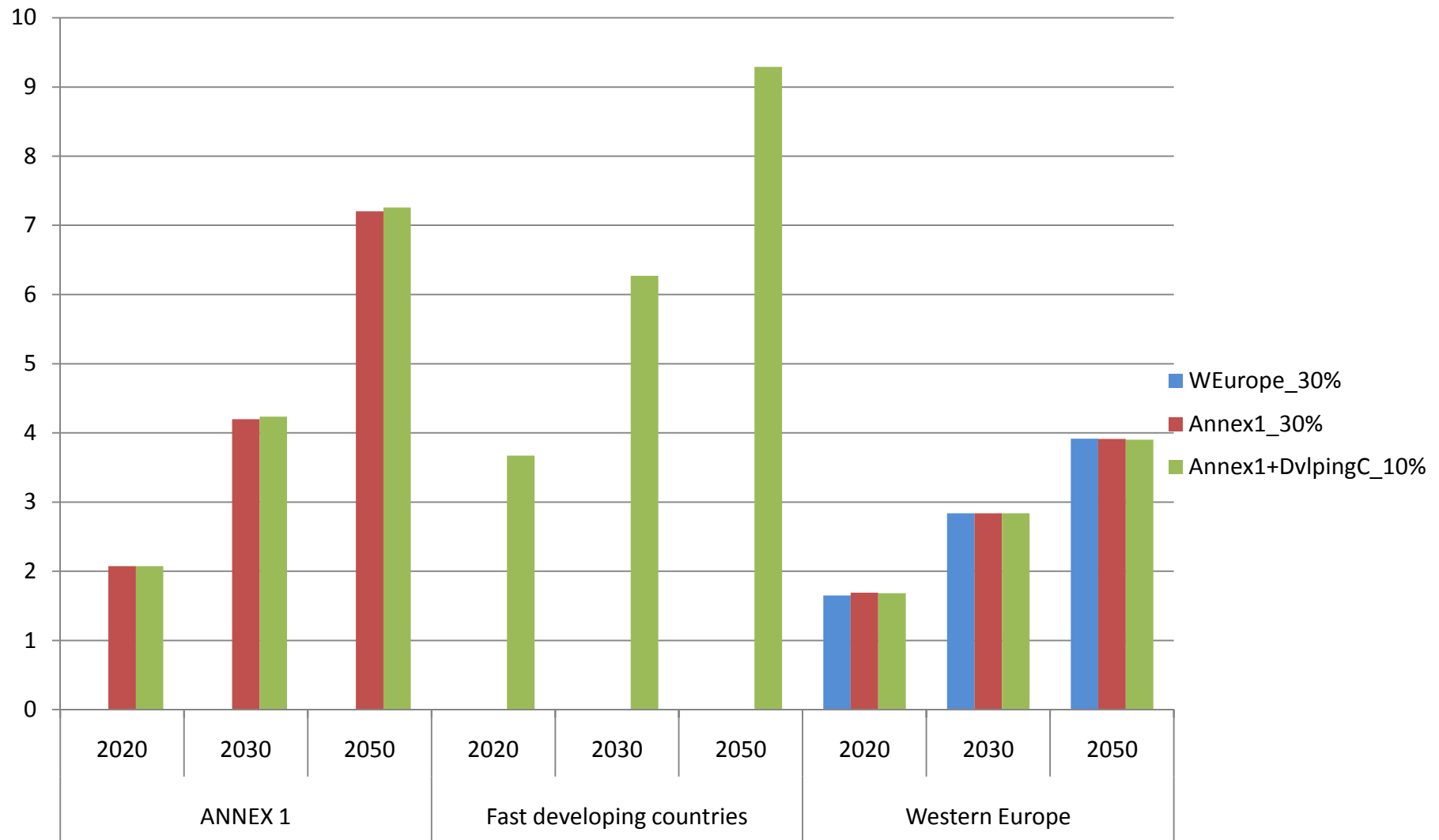


Leads worldwide to the following ppm



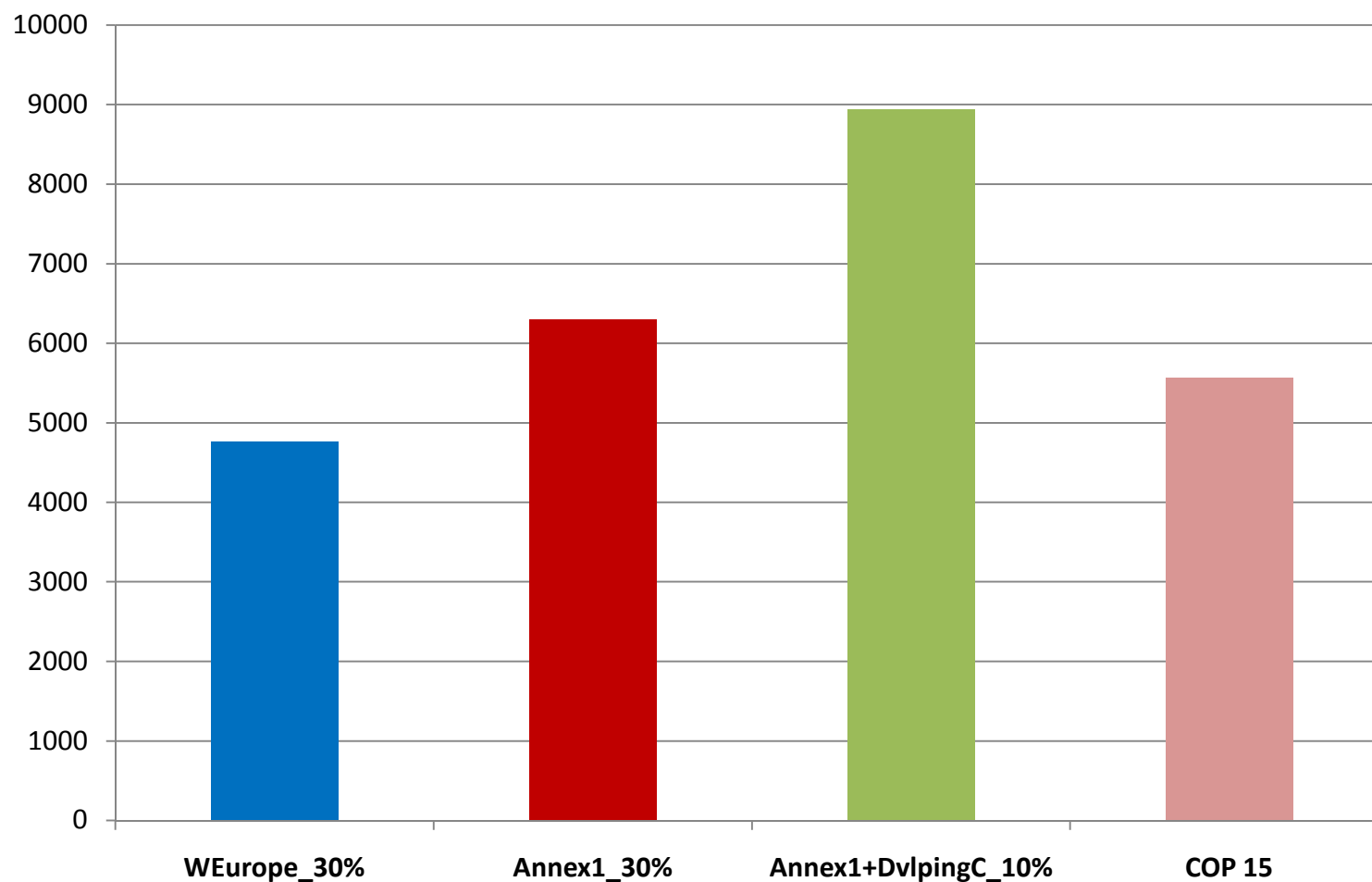
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Carbon capture and storage (GtCO₂)



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Total discounted cost (2005 billions US\$) by scenario



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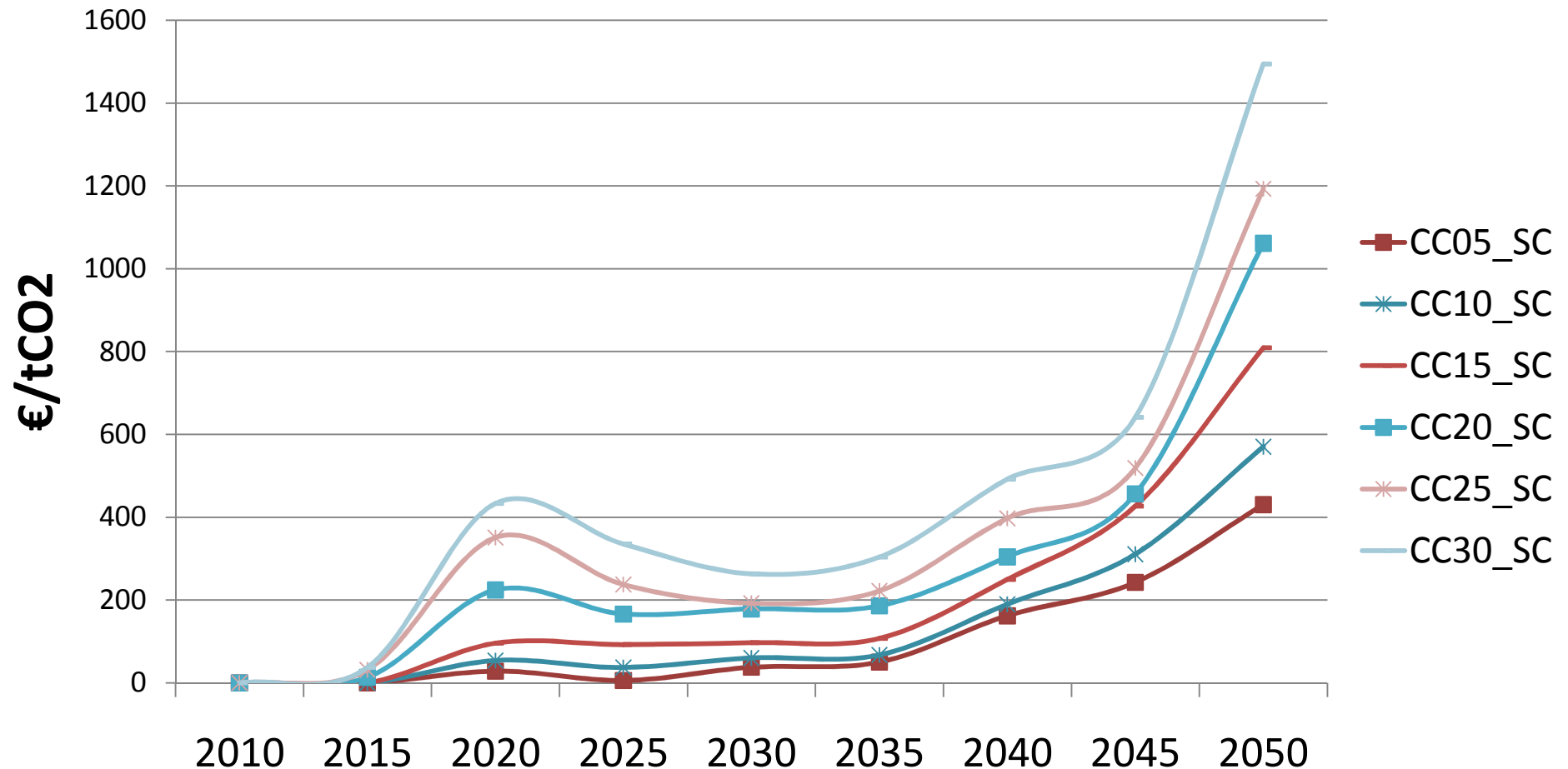
The local implementation: case of France within Europe

- European pledges: from 20 to 30% in 2020
- Local context:
 - Finance : crisis, ...
 - Technology : inertia (for instance 80% of the electricity generation relies on nuclear power), geographical constraints,...



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Selection of plausible scenarios: CO₂ marginal cost



CO₂ marginal costs: values

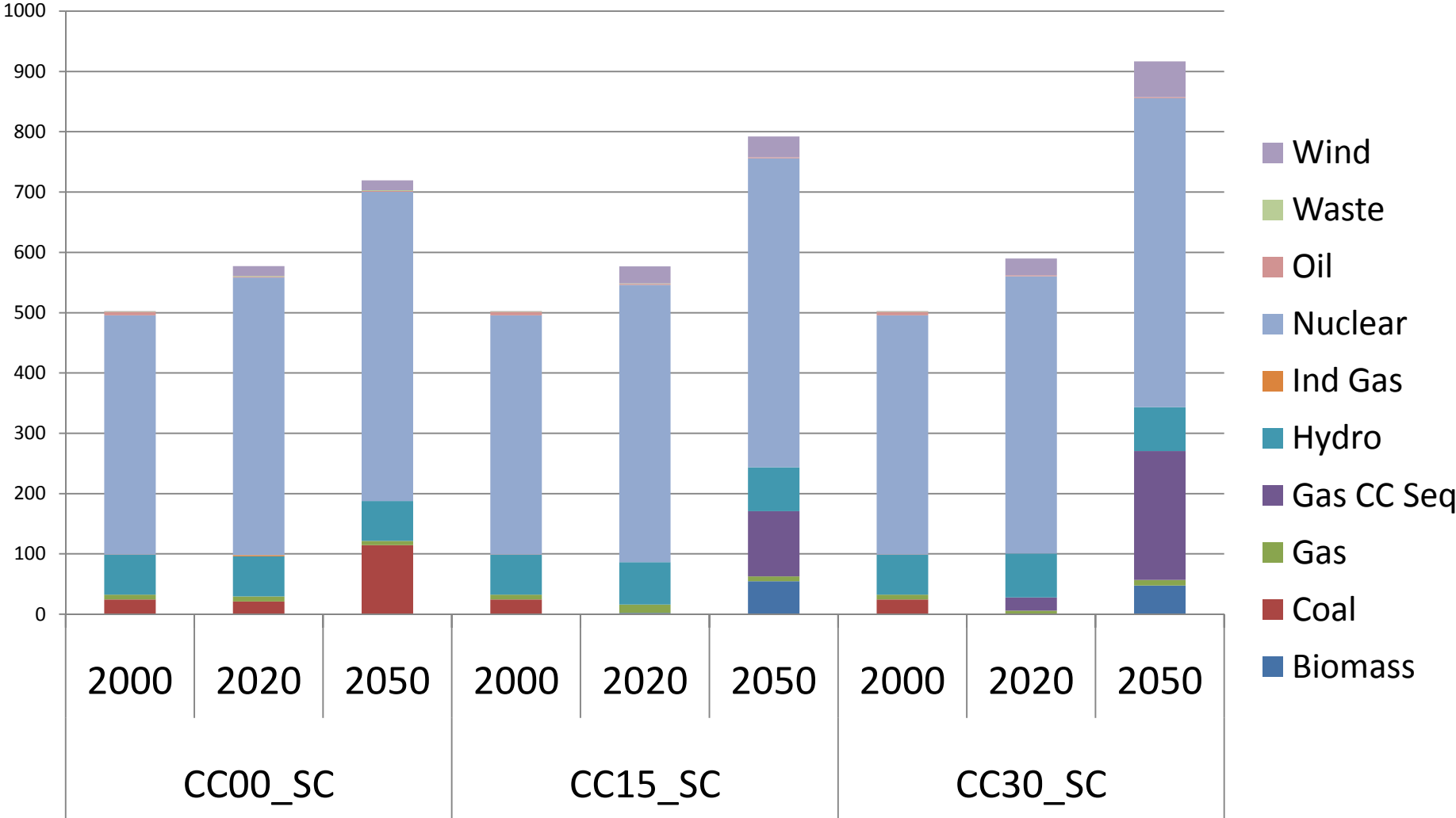
€/tCO ₂	2020	2030	2040	2050
SC 15%	96	97	249	809
SC 20%	224	179	304	1062



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24 Mar 2007

Power generation mix



ANNEX



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Scenarios Specification

Previous scenarios		Concerned regions	Constraints 2020	Constraints 2050	Reference Year
Western Europe	WEurope_20%	Western Europe	20%	60%	1990
	WEurope_30%	Western Europe	30%	80%	
Developped countries	Annex1_20%	Western Europe, USA, Japan, Canada, Australia	20%	60%	1990
	Annex1_30%	Western Europe, USA, Japan, Canada, Australia	30%	80%	
Developped countries + China + India	Annex1+DvlpingC_10%	Western Europe, USA, Japan, Canada, Australia + China, India	30% (Annex1)+ 10% (China, India)	80% (Annex1)+ 20% (China, India)	1990
	Annex1+DvlpingC_20%	Western Europe, USA, Japan, Canada, Australia + China, India	30% (Annex1)+ 20% (China, India)	80% (Annex1)+ 40% (China, India)	

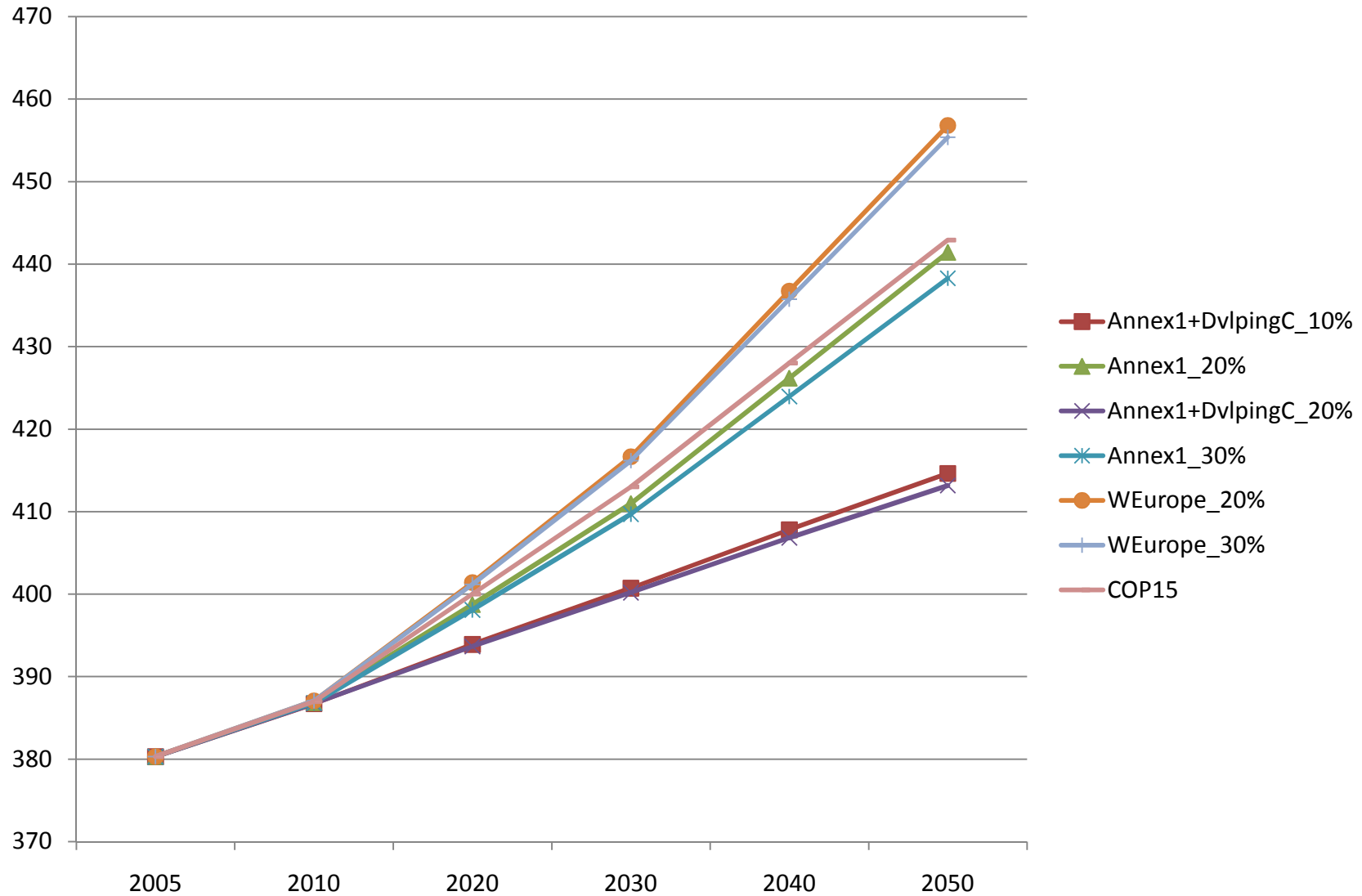
Last scenario	Regions	Year reference	Constraints 2020	Constraints 2050
COP15	Western Europe	1990	30%	80%
	Japan	1990	25%	80%
	US	2005	17%	80%
	China	2005	40%	80%

42% by 2030 compared to 2005

Carbon intensity

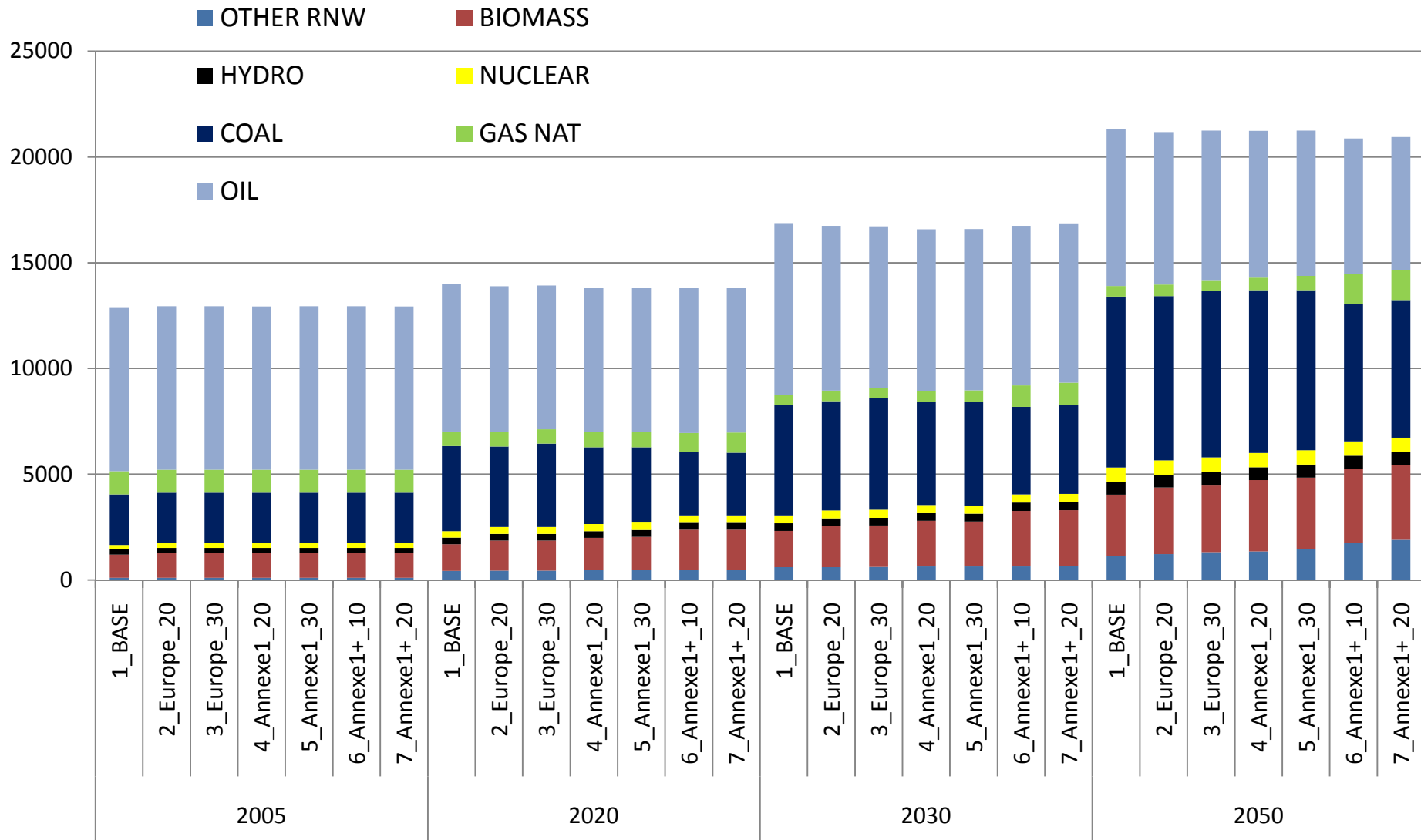


Atmospheric concentration of CO₂ (ppm) following scenarios

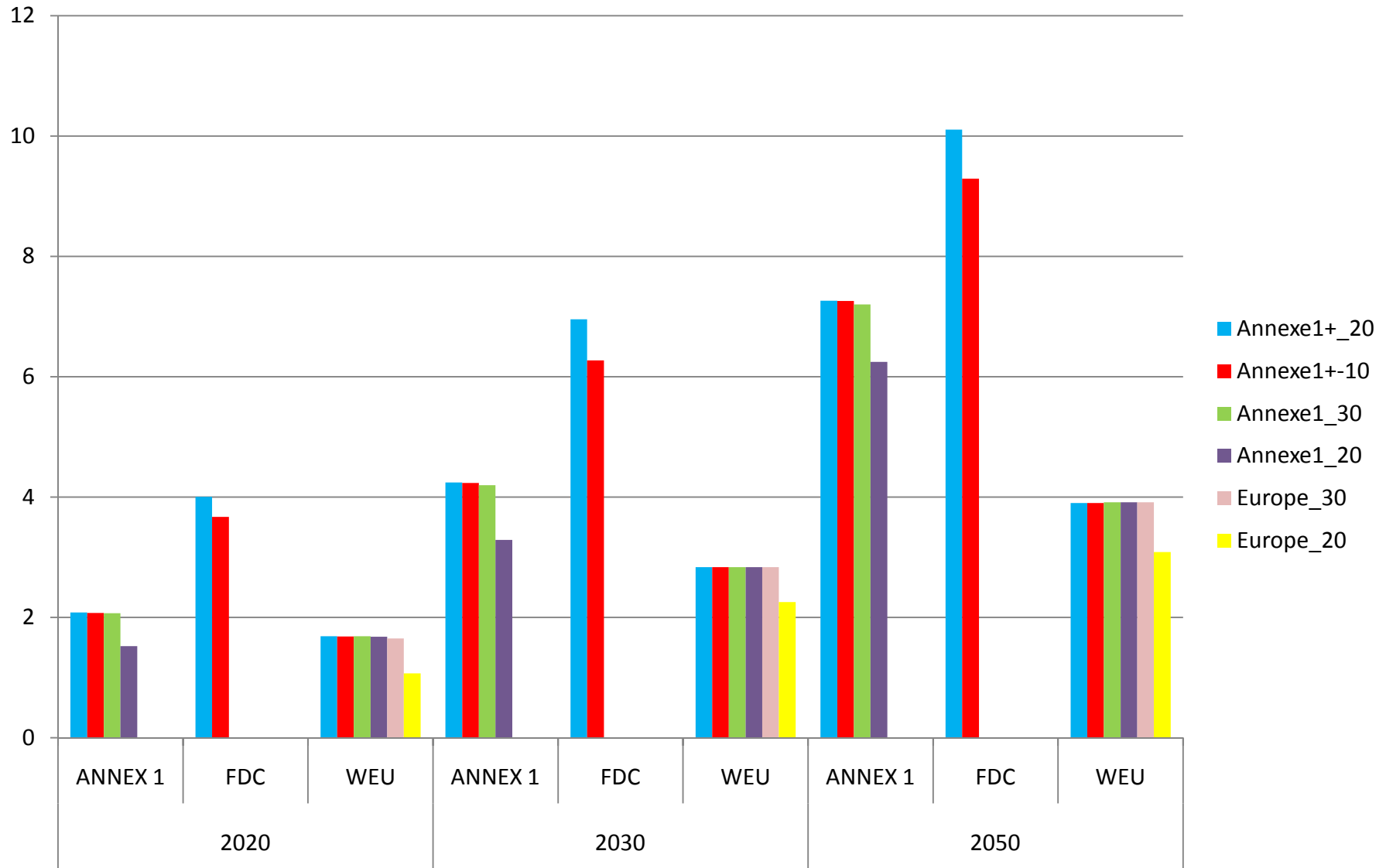


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Total Primary Energy Supply (TPES by Mtoe)

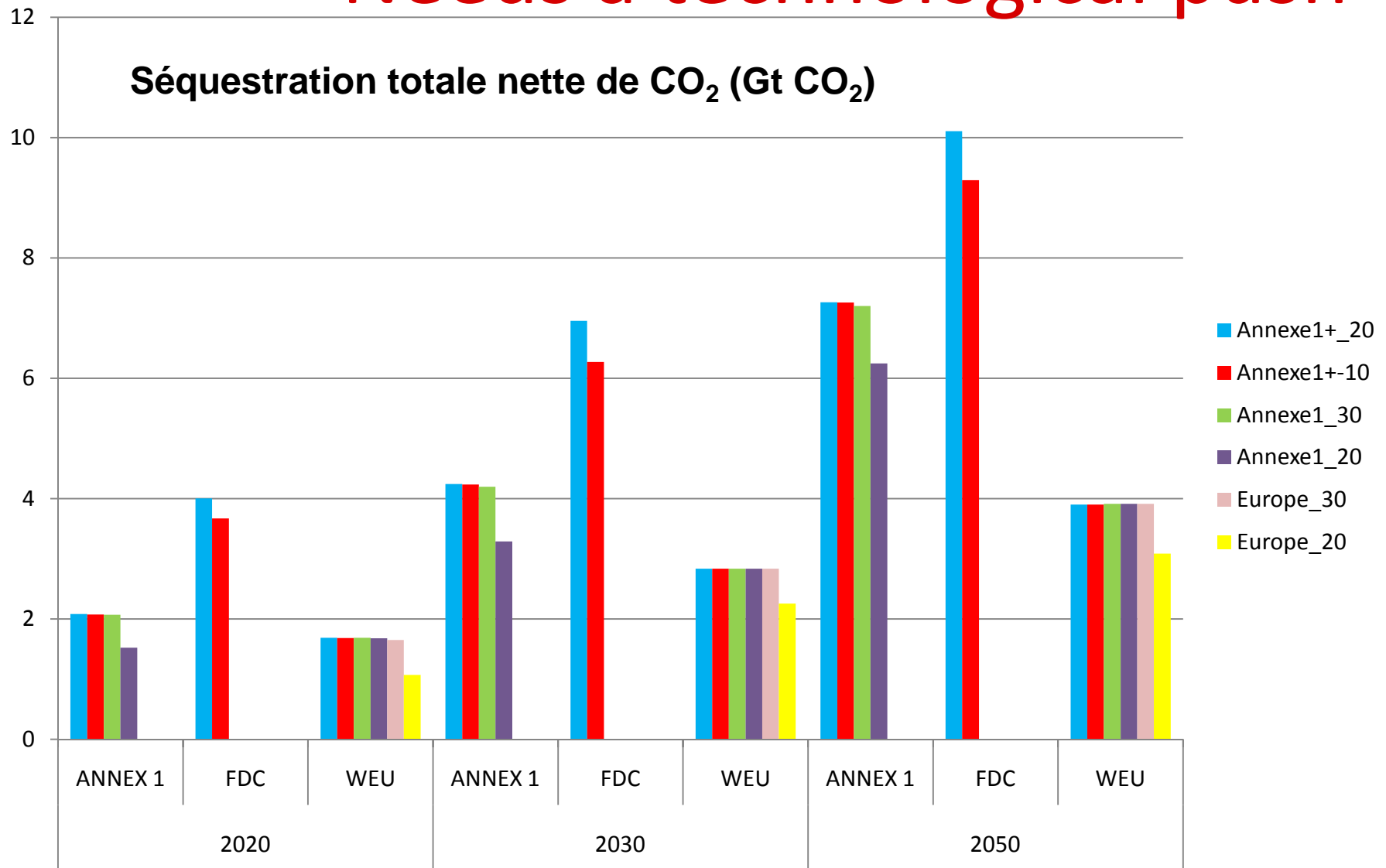


Carbon storage (Gt CO₂)



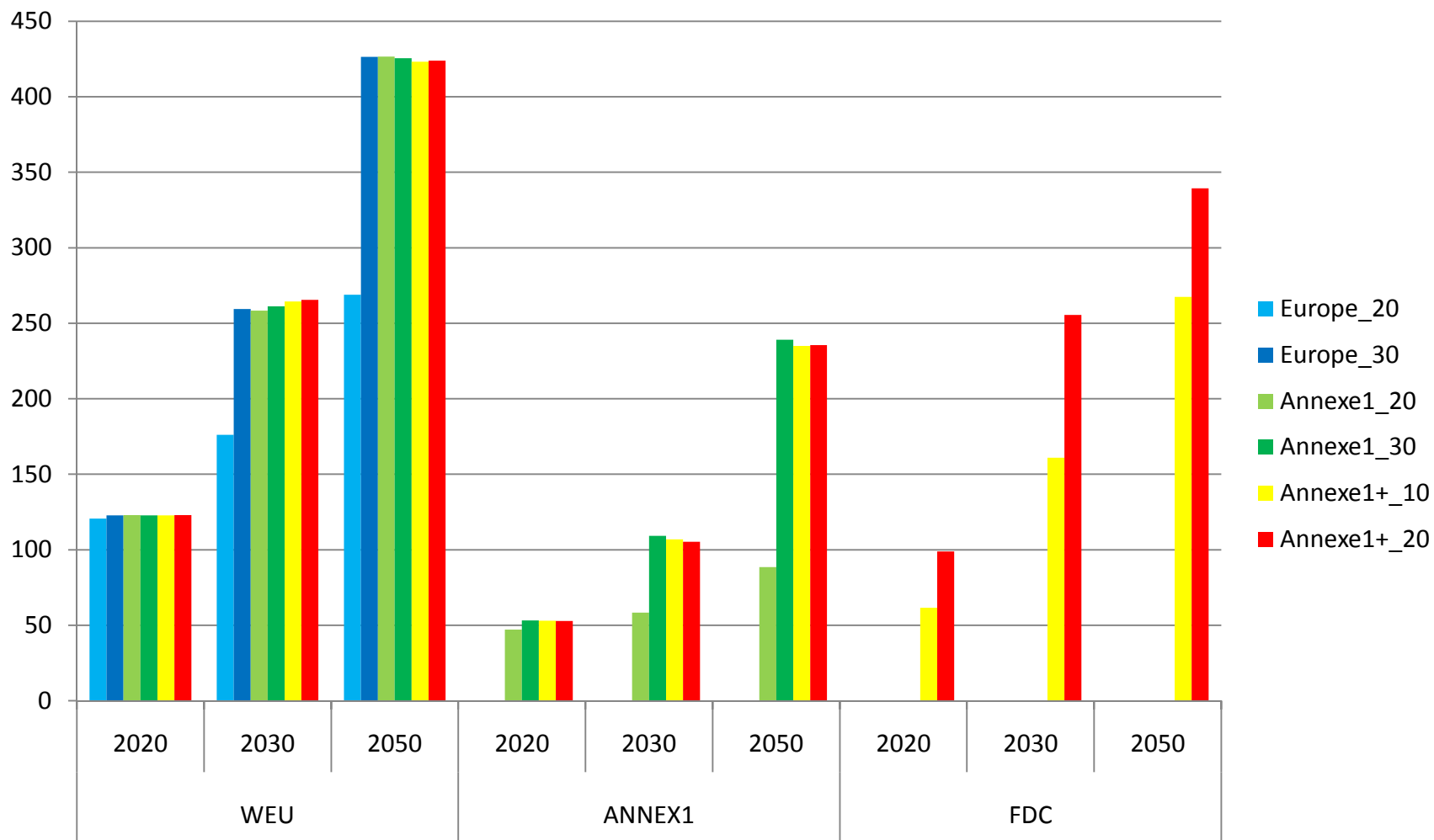
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Needs a technological push



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Carbon cost (2005 US\$/t) by scenario and by region (Ponderated by total carbon emissions)



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