



IRA, CBAM, ETS, FITs AND OTHER ACRONYMS

Antoine Dechezleprêtre

Science, Technology and Innovation Directorate, OECD

TSE - "Which policies and market design for the energy transition?"

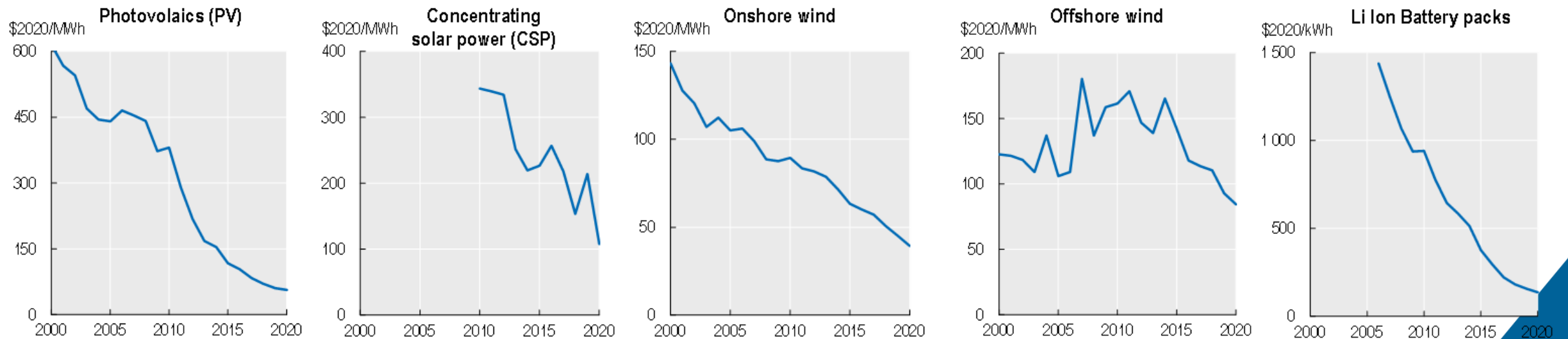
6 June 2024



The climate policy mission: reducing the costs of low-carbon technologies

- Reducing costs to make carbon-free technologies competitive with their high-carbon alternatives should be a primary objective of climate policy

Declining renewable energy and battery costs since 2010



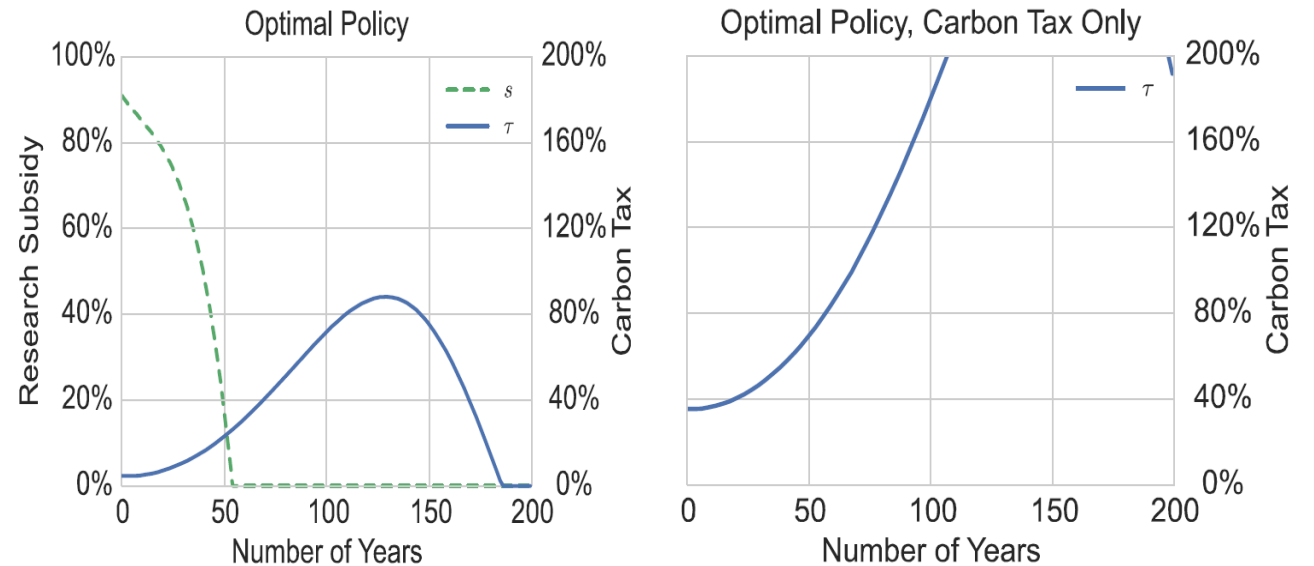
Source: IRENA 2021, IPCC 2022.



How to achieve this?

- Carbon pricing
- Innovation and industrial policies
- Standards & regulations
- Infrastructure
- etc

Subsidies to clean research allow for much smaller carbon taxes



Source: Acemoglu et al., 2016. Transition to clean technology. Journal of Political Economy



What people want

- Support to various climate policies:

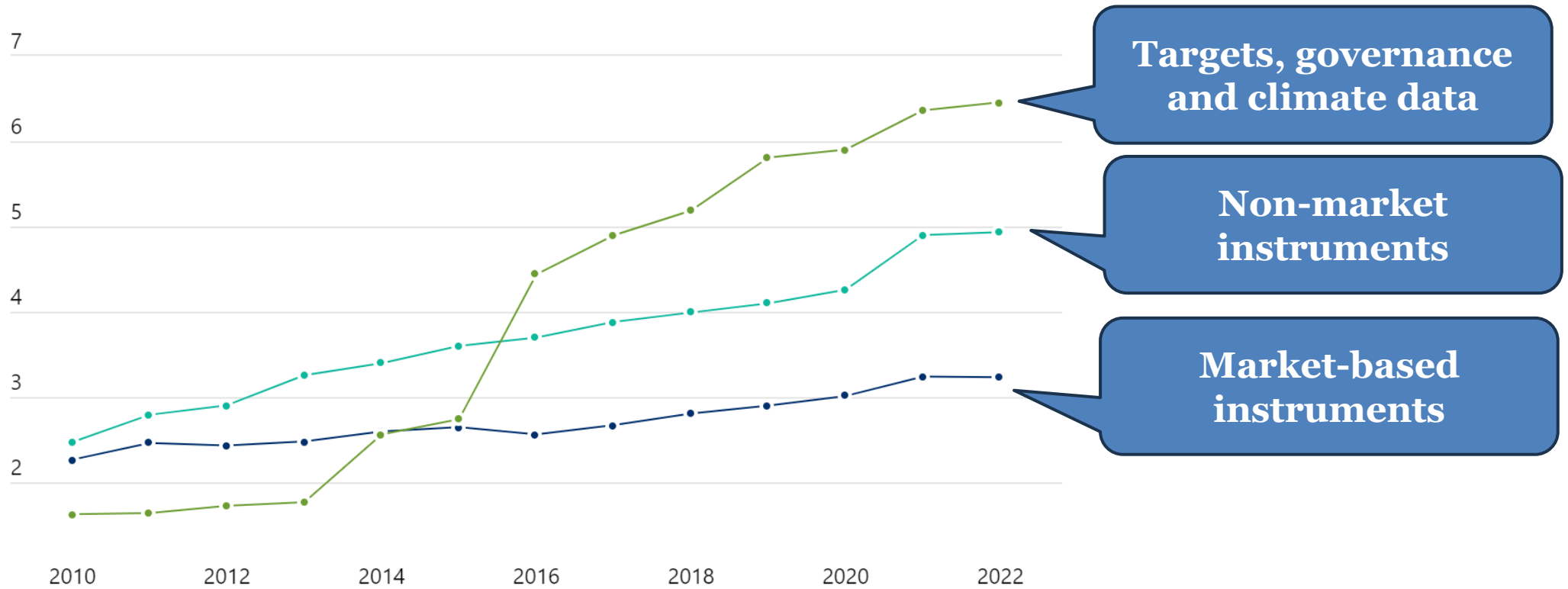
(Global survey;
2000 respondents
per country)

Source: Dechezleprêtre, A. et al. (2022), “Fighting climate change: International attitudes toward climate policies”, OECD Economics Department Working Papers, No. 1714

	High-income	Australia	Canada	Denmark	France	Germany	Italy	Japan	Poland	South Korea	Spain	United Kingdom	United States	Middle-income	Brazil	China	India	Indonesia	Mexico	South Africa	Turkey	Ukraine
Support for Main Climate Policies																						
Green infrastructure program	57	49	56	53	57	42	78	48	58	68	71	54	50	78	77	82	80	80	84	73	76	69
Ban on combustion-engine cars	43	35	47	41	28	32	54	41	44	52	54	45	39	65	60	72	77	65	67	53	62	58
Carbon tax with cash transfers	37	34	41	30	29	28	47	35	36	53	44	34	33	59	47	80	71	67	55	52	55	39
Support for Other Climate Policies																						
Subsidies to low-carbon technologies	67	62	65	67	56	64	79	69	75	71	73	65	57	73	77	75	68	79	66	75	75	68
Mandatory and subsidized insulation of buildings	66	70	64	70	64	60	73	59	72	72	71	70	53	75	80					73	75	75
Ban on polluting cars in city centers	60	53	60	66	57	50	76	64	61	52	64	65	49	71	65	73	74	85	72	66	60	67
Funding clean energy in low-income countries	54	49	50	53	48	48	76	53	55	57	65	51	50	73	63	71	75	81	74	76	66	78
Ban on combustion-engine cars w. alternatives available	48	38	47	42	42	41	58	51	48	58	57	52	44	68	60	78	77	72	66	62	64	63
Tax on flying (+20%)	45	35	44	60	46	53	41	47	44	42	44	46	33	52	39	61	64	68	51	43	45	36
Tax on fossil fuels (\$45/tCO ₂)	36	36	40	43	31	31	38	35	27	42	39	38	34	48	35	58	64	58	41	38	52	28
Support for Carbon Tax With:																						
Funding environmental infrastructures	63	60	48	60	65	60	76	56	68	78	69	63	56	75	78	76	71	81	73	79	73	69
Subsidies to low-carbon tech.	63	58	49	52	57	66	76	68	71	79	69	59	53	73	74	79	68	79	71	78	66	65
Reduction in personal income taxes	57	52	48	38	62	54	72	64	69	62	67	52	49	69	69	74	68	74	69	68	66	64
Cash transfers to the poorest households	53	51	48	41	55	47	68	54	50	59	63	57	46	73	67	82	69	86	66	65	82	62
Cash transfers to constrained households	50	50	42	36	55	47	62	47	39	62	61	52	44	64	59	69	63	74	59	60	65	61
Tax rebates for the most affected firms	48	41	41	38	52	34	66	49	61	59	55	41	43	62	59	72	65	68	54	63	55	56
Reduction in the public deficit	48	40	39	34	49	39	66	50	56	48	62	44	48	63	62	72	65	70	61	62	57	52
Equal cash transfers to all households	38	37	38	27	45	31	42	43	37	42	44	33	38	61	45	70	64	76	62	57	59	53
Reduction in corporate income taxes	37	29	32	24	37	25	55	38	48	48	50	26	29	58	54	67	60	67	61	50	60	42
Support for Cattle-Related Policies																						
Subsidies on organic and local vegetables	56	42	50	59	52	56	71	46	73	62	65	49	43	68	62	79		77	58	59	80	58
Ban of intensive cattle farming	42	32	41	31	55	49	64	17	44	44	43	50	36	39	38	50		45	46	28	32	25
Removal of subsidies for cattle farming	34	31	33	32	28	38	42	16	34	31	42	37	38	39	43	47		51	47	27	31	22
A high tax on cattle products, doubling beef prices	30	24	27	31	29	40	37	19	30	26	31	31	31	36	33	48		49	37	30	26	24



What governments have done

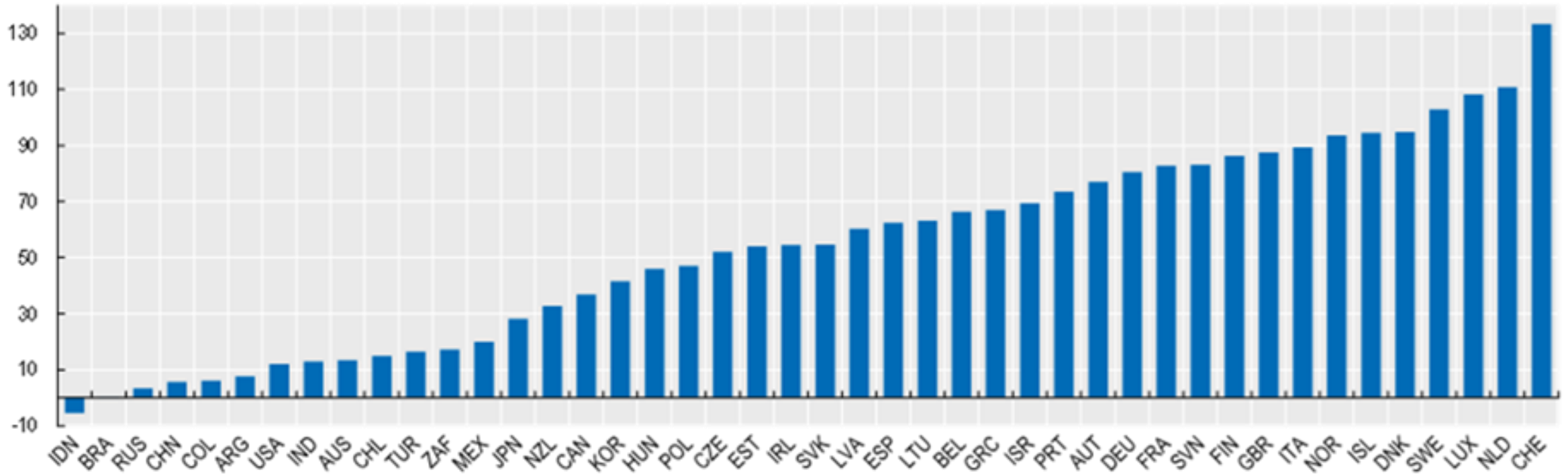


Source: OECD Climate Action Monitor 2023



A bit of carbon/fossil fuel pricing, with vast heterogeneity

EUR/tonne CO2



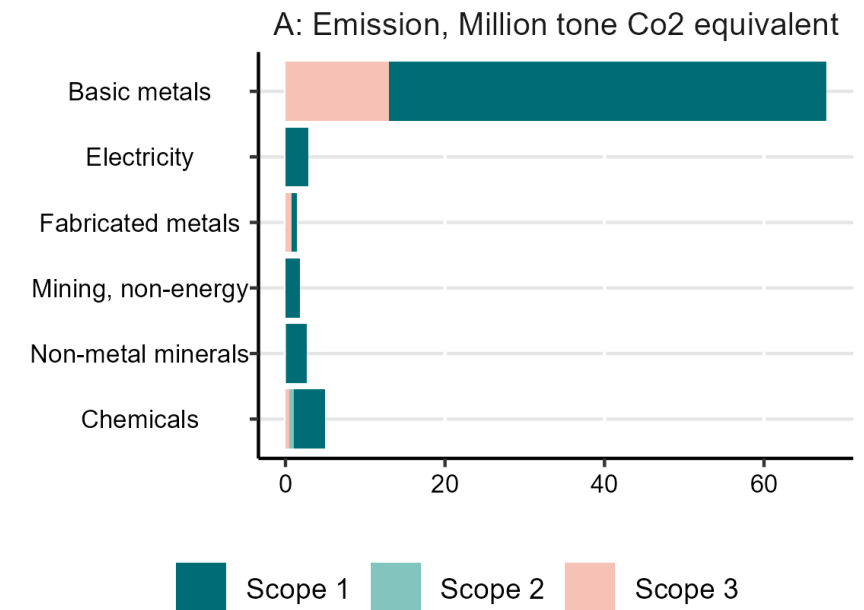
Source: OECD Effective Carbon Rates (OECD, 2021).



A tiny bit of CBAM

- 303 energy-intensive goods (Iron and steel, Cement, Fertilizers, Aluminium, Electricity, Hydrogen) + partly scope 2 emissions and scope 3 upstream
 - 75.7 billion USD of traded goods with EU (0.4% of global trade flows, 3.4% of EU imports)
 - 82 Mt of embedded emissions: **0.20% of global energy and process-related emissions** (3.1% of EU's)

Covered emissions by CBAM (Scope 1 + 2 + 3)





CBAM effectively tackles leakage but not competitiveness

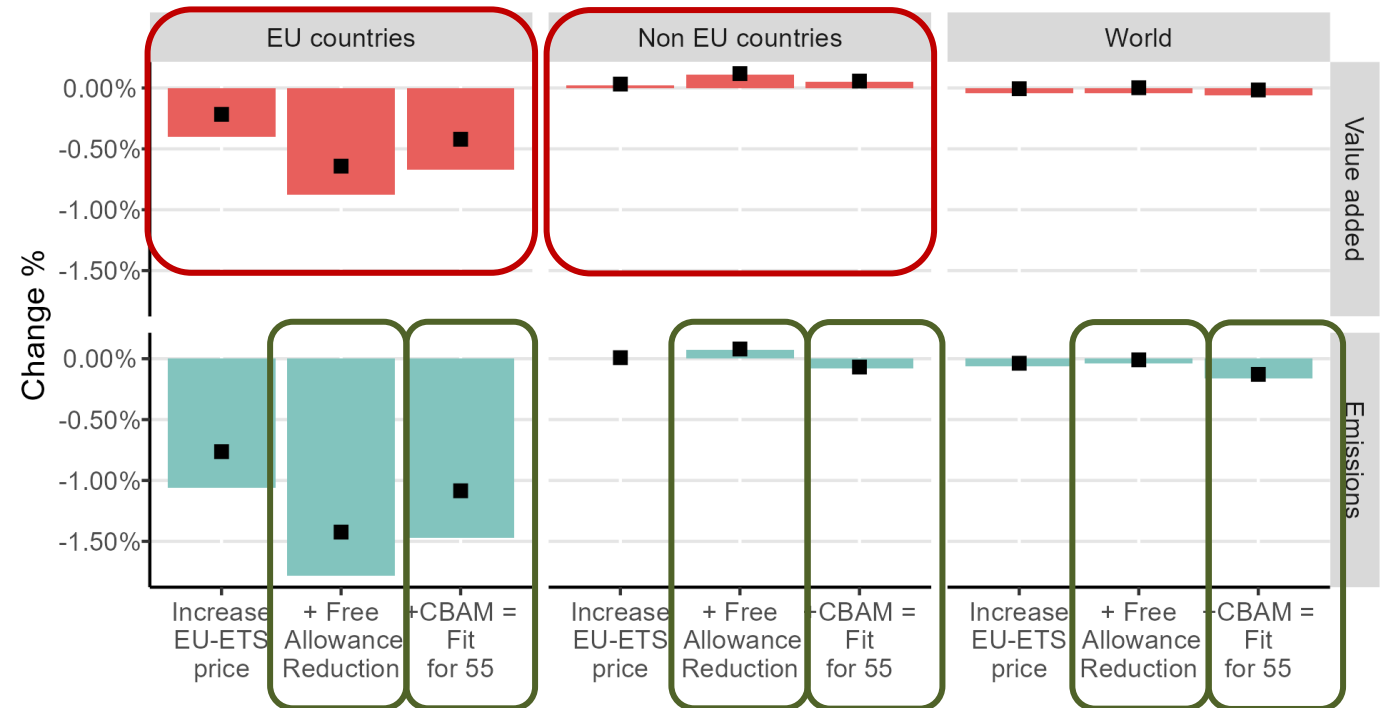
- **Value-Added**

- CBAM will only partly mitigate the negative impact of higher ETS prices and free allowances removal (EUR 40bn/year at current price)
- Revenue recycling can only partially attenuate these effects (EUR 5bn at current price)

- **Emissions**

- Effective anti-leakage instrument: negative leakage due to shift in demand towards countries with low emission intensity and carbon prices
- Ex-post impact will depend on dynamic response

Macro-level effect across CBAM industries

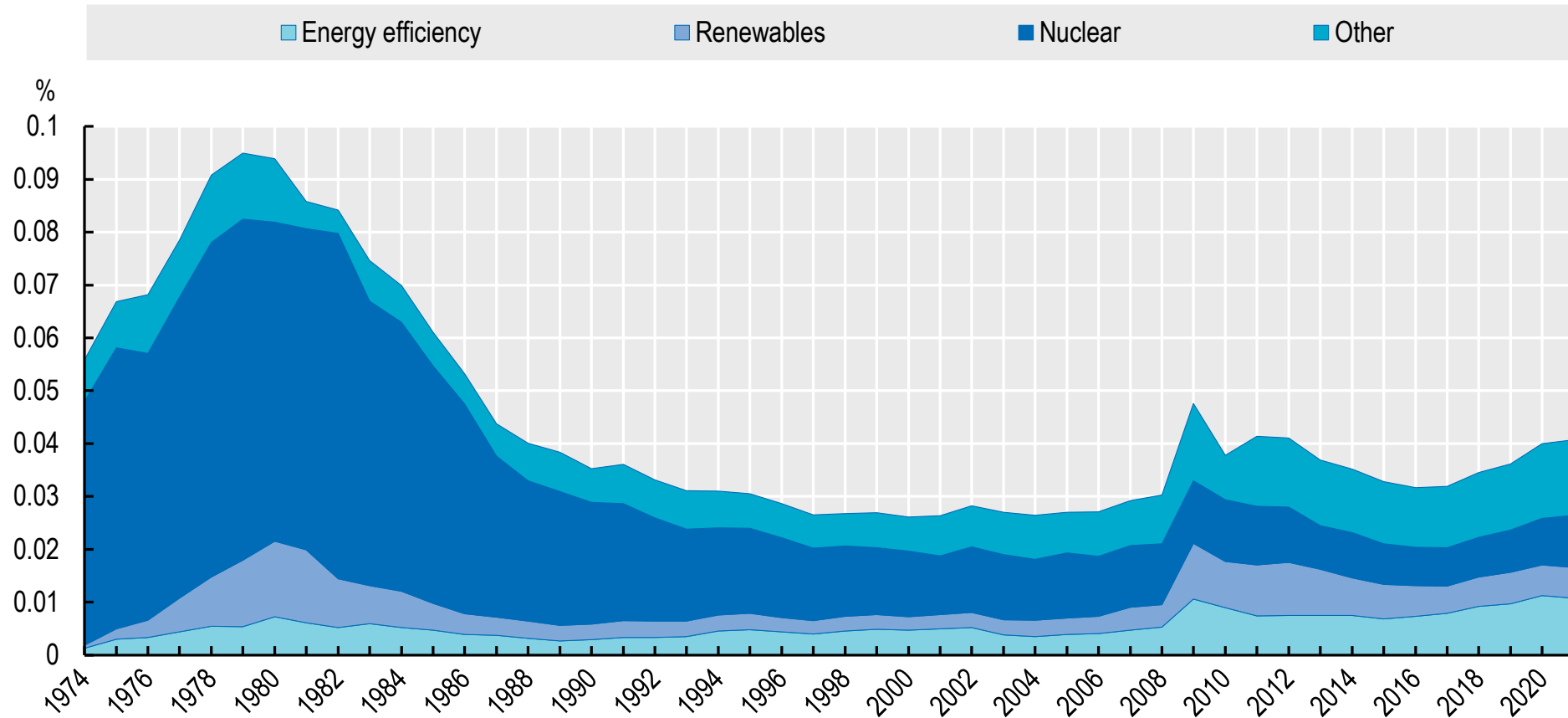


Source: Dechezleprêtre et al. (Forthcoming), “An examination of the direct and indirect effects of the European Union’s Carbon Border Adjustment Mechanism”



(Very) Little support for R&D

Low-carbon public R&D expenditures in GDP, 1974-2021

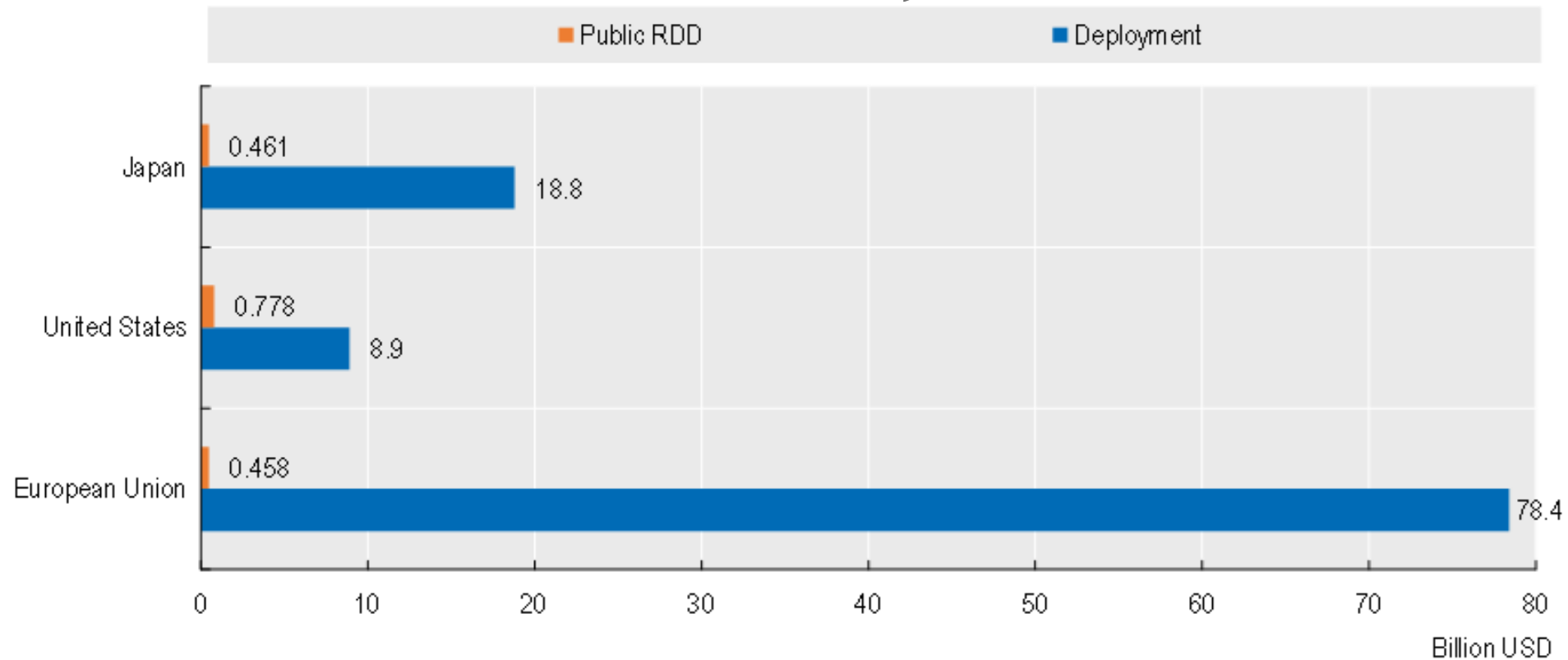


Source: IEA Energy RD&D public expenditures (2023)



Large support for deployment (e.g. renewables)

Public RD&D vs deployment support in renewable energy 2018 (bn USD)

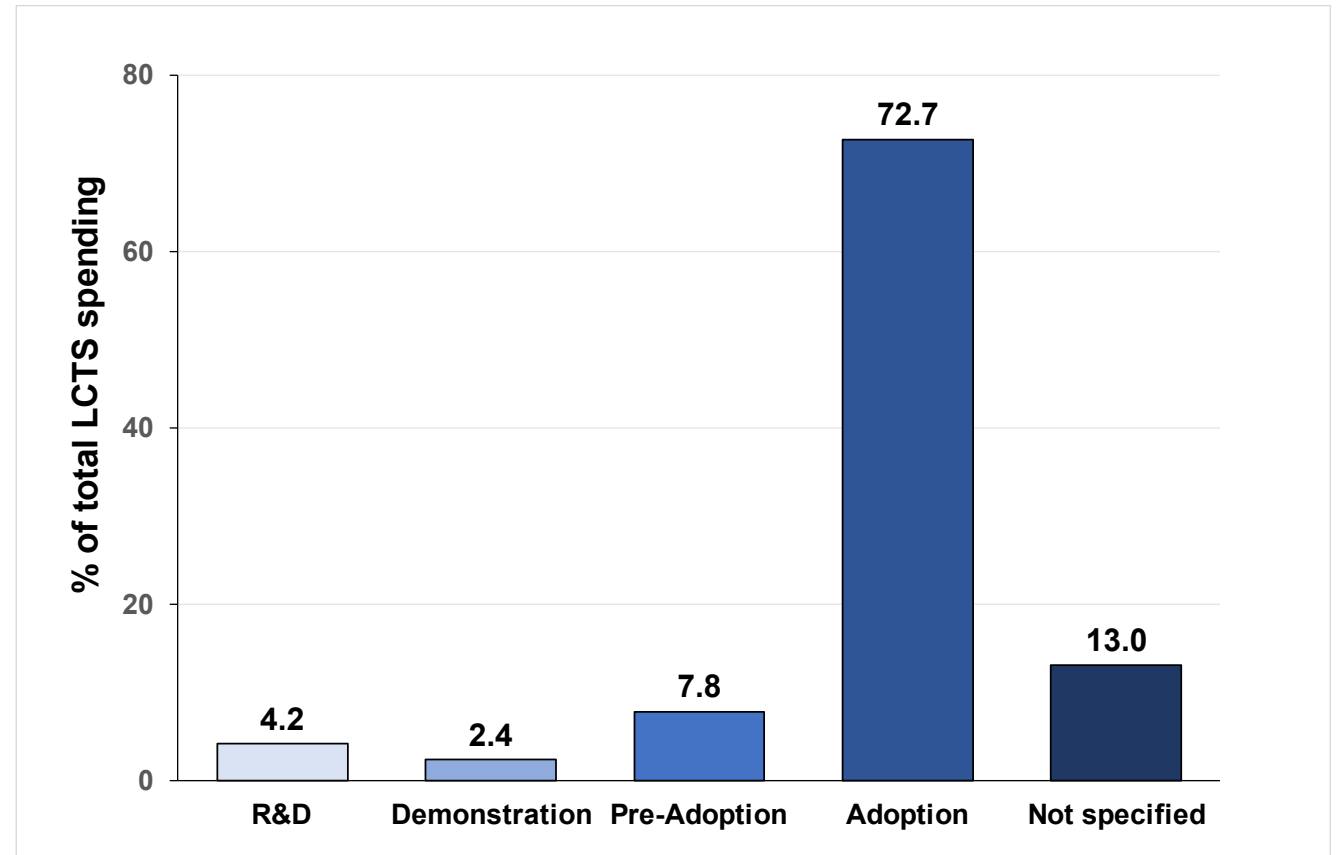


Source: IEA (RD&D); IRENA (deployment)



Post-covid packages (IRA, RecoverEU) similar

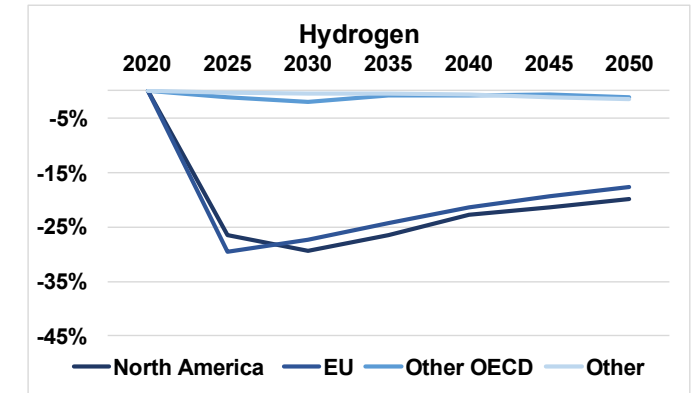
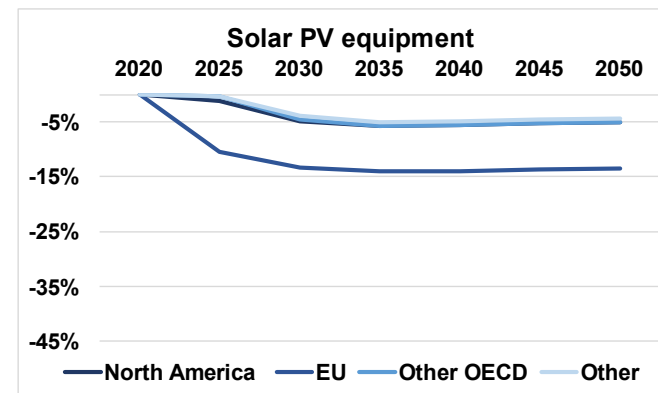
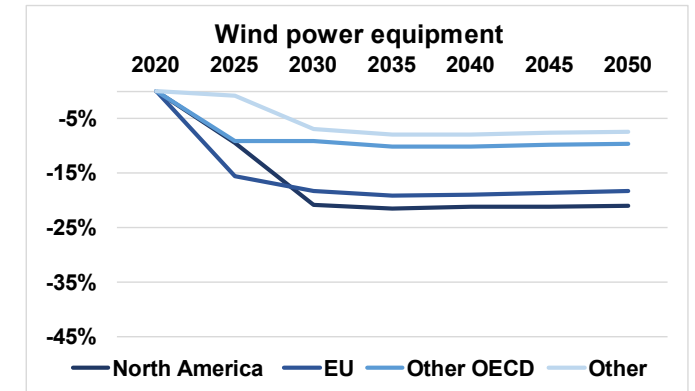
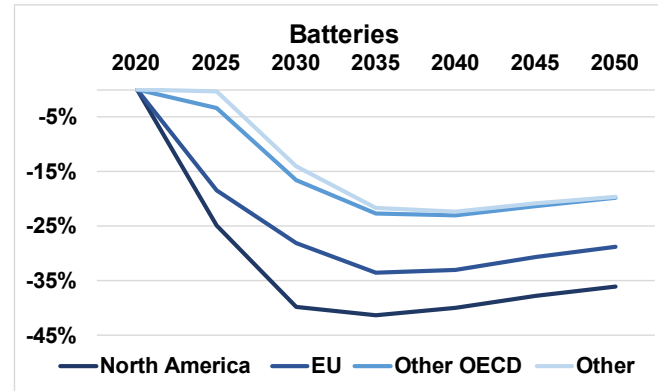
- Covid recovery: **1.29 trillion USD** announced spending on low-carbon technologies (2% of one year of GDP on average)
- Most funding channeled towards adoption and deployment of mature technologies





Clean tech support leads to significant cost decreases

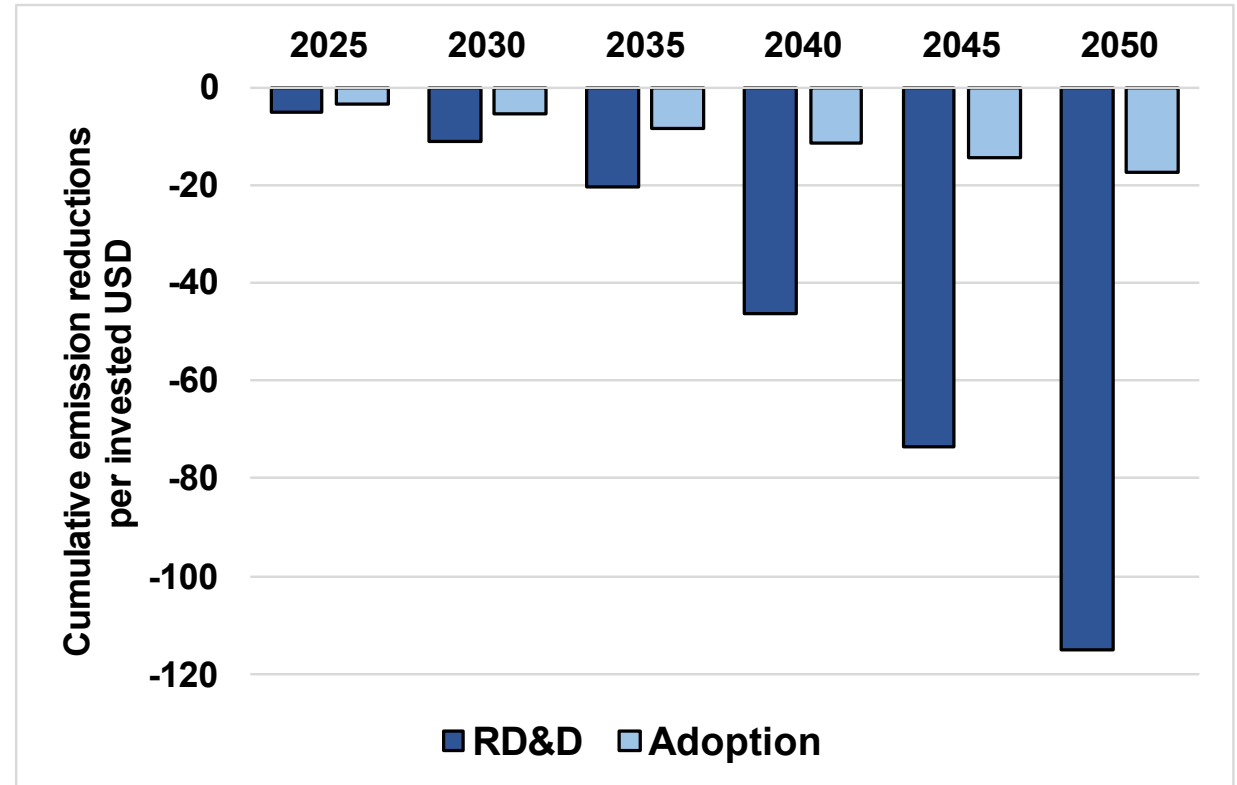
- R&D investments, knowledge spillovers and learning by doing trigger large cost reductions:
 - Batteries -40% in US, -30% in EU
 - Hydrogen -30%
 - Wind -20%
- These cost reductions trigger 400Mt of emissions reductions outside OECD and EU by 2050





RD&D support has major & growing impact on emissions reductions over time

- RD&D support accounts for 5% of emissions reductions in 2030, but 26% in 2050.
- 1 euro spent on RD&D support induces **six times** more cumulative emissions reductions by 2050 than the same euro invested to support adoption





Take-away messages

- Encouraging low-carbon innovation directly
 - Greater support for early-stage technologies, and better balance with support to diffusion, using direct support instruments
- More focus on the supply side
 - Public infrastructure (grid, charging stations, carbon and H2 pipelines...)
 - Entrepreneurship
 - Workers & skills
- Provide clear indication on direction of change
 - Carbon pricing, but also standards, regulation (e.g. buildings, recycled content, bio-based products) and public procurement
 - Reduce policy uncertainty



Thank you

For more information:
antoine.dechezlepretre@oecd.org