

Modelling the impact of alternate mitigation paths for the energy sector on cost and carbon budgets

Hannah Daly, Andrew Smith & Olexandr Balyk

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HOST INSTITUTION



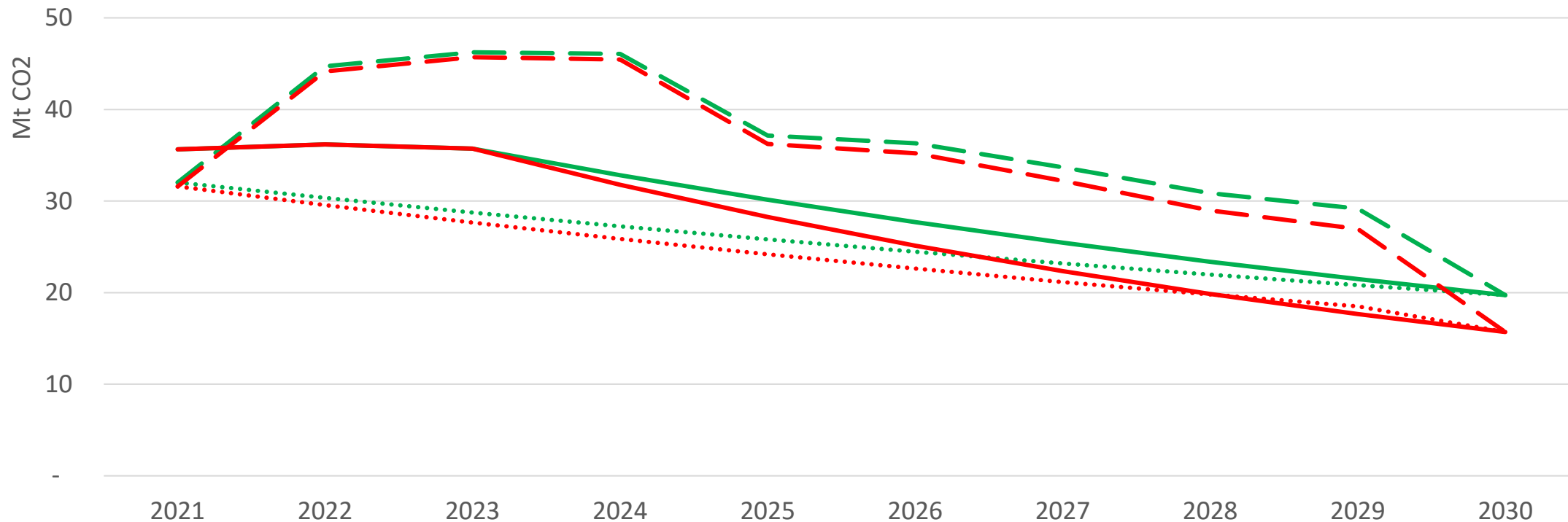
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Alternate pathways to meeting energy system decarbonisation targets: What implications for cost and carbon budgets?



— E-51%
— E-61%

..... E-51% - Early Action
..... E-61% - Early Action

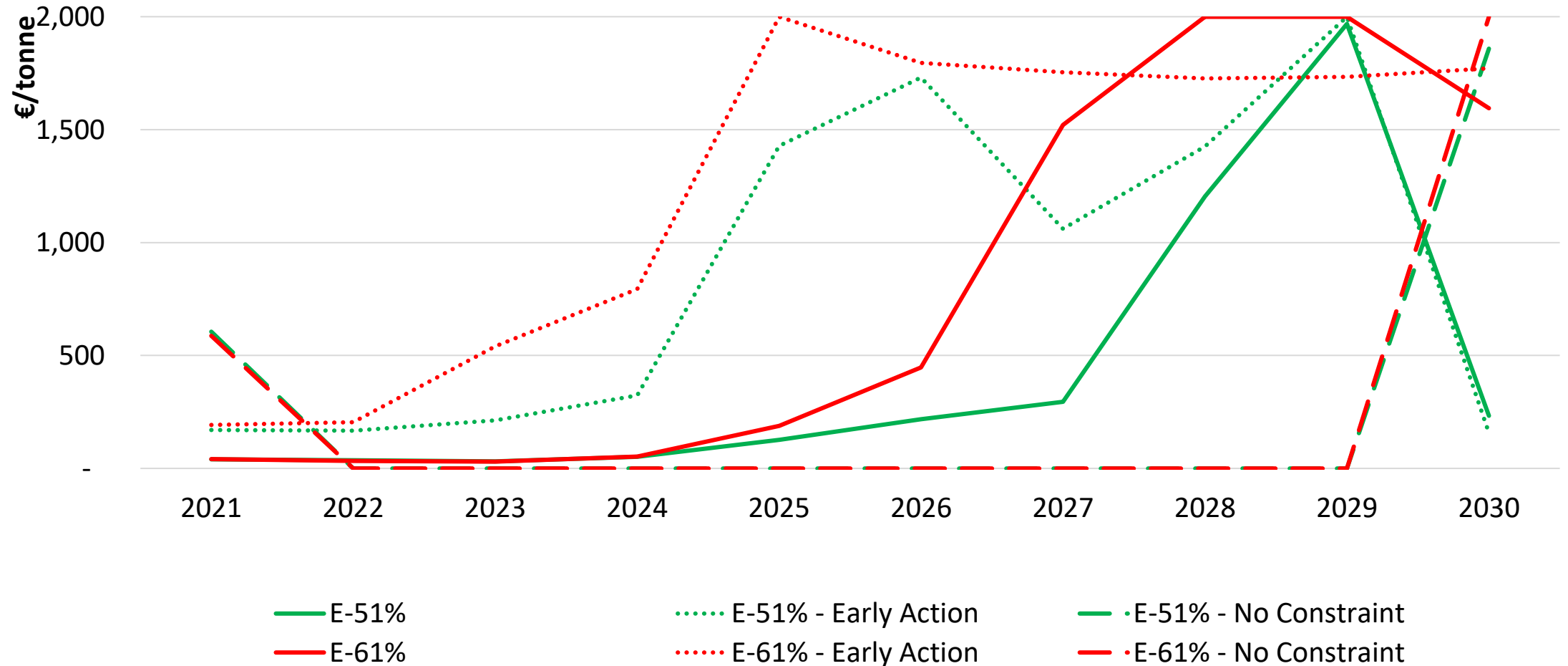
— E-51% - No Constraint
— E-61% - No Constraint

Core – assume “WAM” until 2023 then linear to 2030

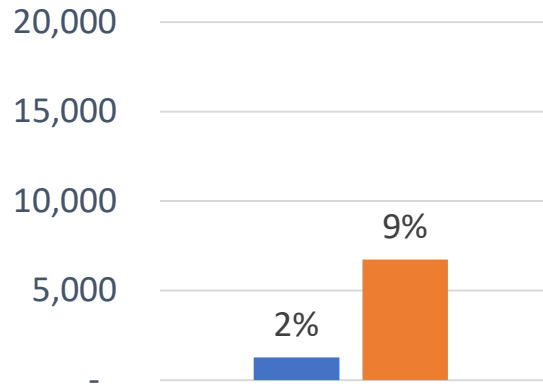
Linear path from 2020-2030

Emissions only constrained to 2021 & 2030

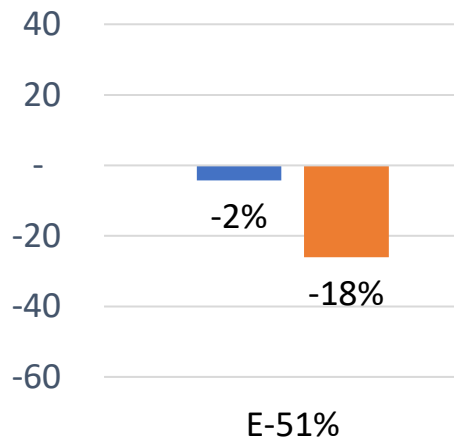
Marginal abatement cost is highly sensitive to the pathway



Additional cumulative energy system cost relative to WAM scenario (€m)

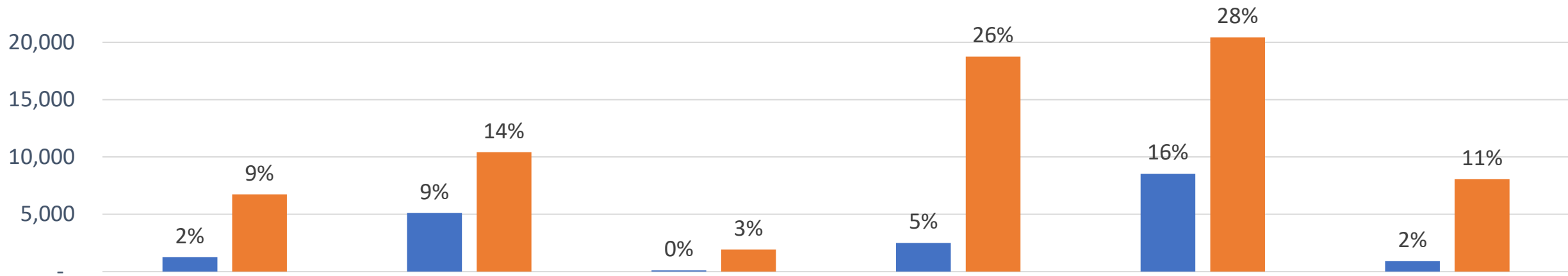


Change in carbon budget relative to WAM scenario (Mt CO₂)

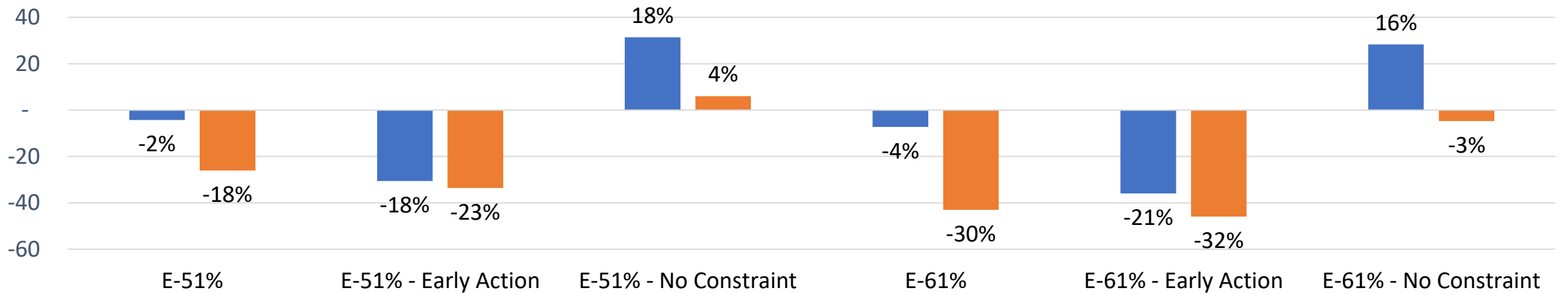


■ CB1 (2021-25) ■ CB2 (2026-30)

Additional cumulative energy system cost relative to WAM scenario (€m)



Change in carbon budget relative to WAM scenario (Mt CO₂)



■ CB1 (2021-25) ■ CB2 (2026-30)

Detailed tables

	Cumulative investment (€m)			Cumulative emissions (MtCO2)		
	CB1	CB2	Total	CB1	CB2	Total
No_mitigation	52,294	69,649	121,942	236	199	435
WAM	53,915	72,998	126,914	175	144	319
E-51%	55,176	79,729	134,906	171	118	288
E-51% - Early Action	59,028	83,415	142,443	144	110	254
E-51% - No Constraint	54,028	74,921	128,949	206	150	356
E-61%	56,421	91,753	148,174	168	101	268
E-61% - Early Action	62,443	93,430	155,873	139	98	237
E-61% - No Constraint	54,819	81,050	135,869	203	139	342

Cumulative cost per cumulative emission savings relative to WAM (€/tonne)

CB1	CB2	Total
295	259	264
167	310	242
- 4	- 320	- 54
346	435	423
237	445	354
- 32	1,713	- 379

