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# Remaining within Ireland's Carbon Budgets and Sectoral Emission Ceilings

Fionn Rogan [f.rogan@ucc.ie](mailto:f.rogan@ucc.ie)

*12th MaREI Climate & Energy Research Seminar (06/06/2024)*

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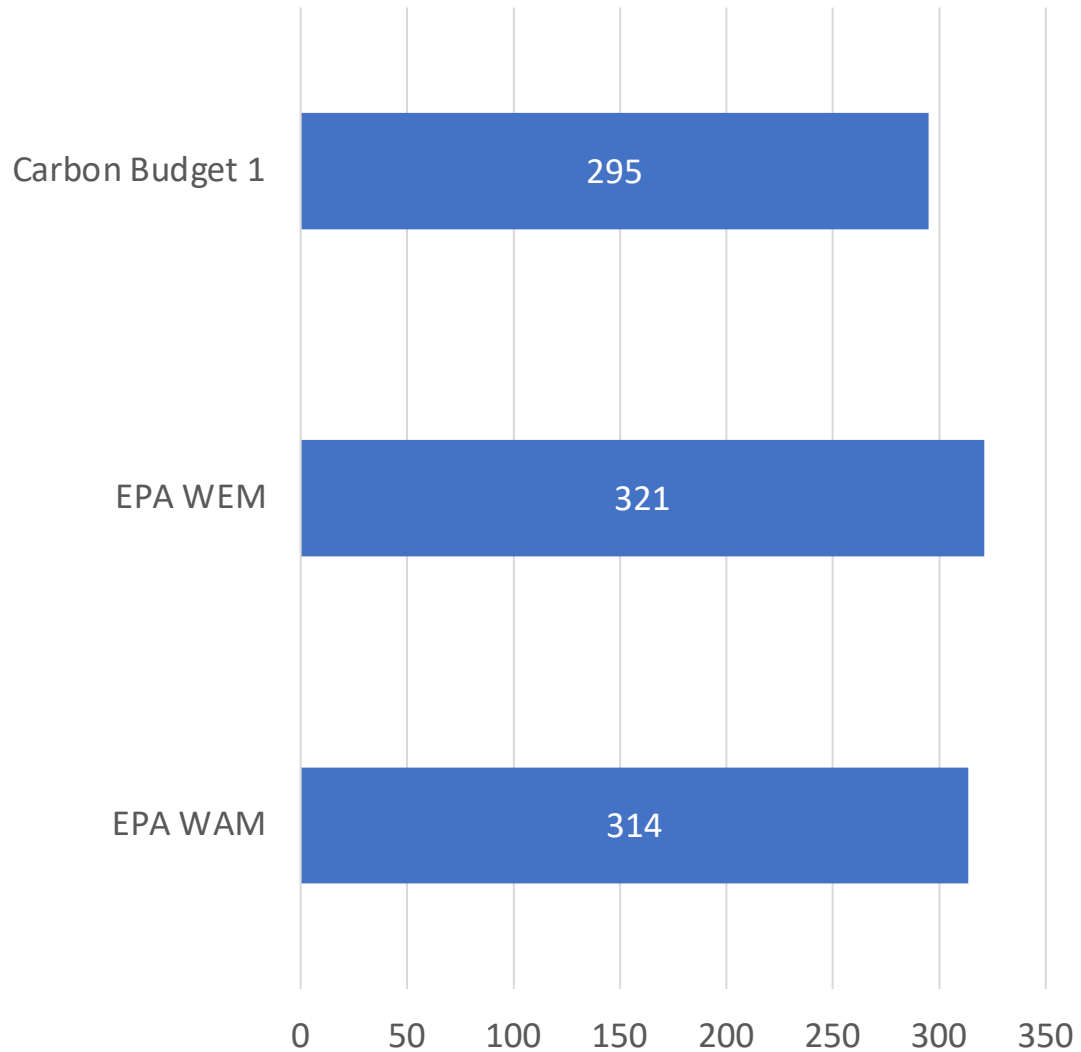


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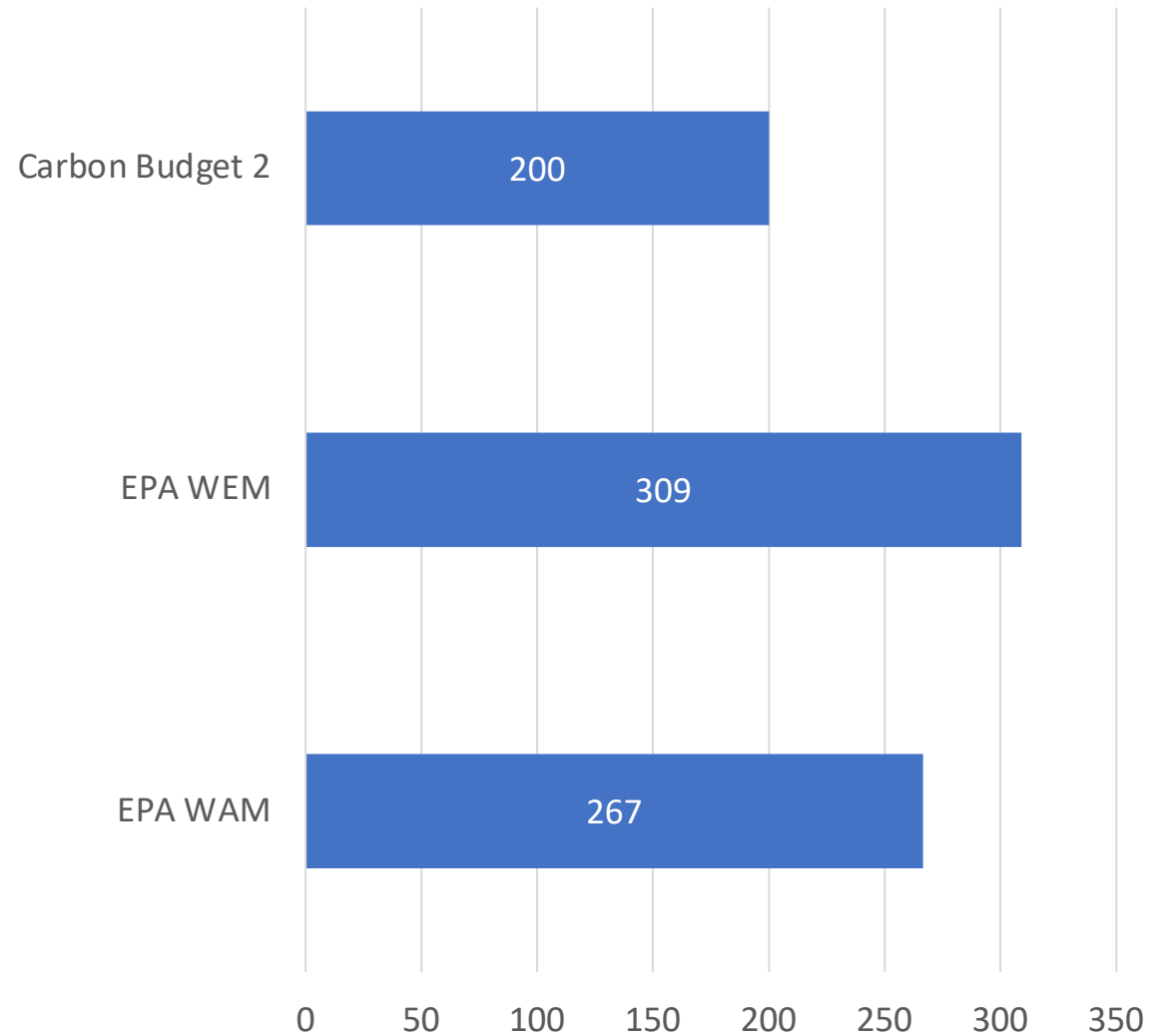


# Latest EPA Projections (May 2024)

### Carbon Budget 1 (2021-2025)



### Carbon Budget 2 (2026-2030)





# CB1 SECs: *what if 2024 & 2025 = rates of change in 2023?*

	2021	2022	2023*	2024	2025	<i>Budget Reached</i>	<i>Overshoot (Mt)</i>
Electricity	10.0	9.8	7.9	6.3	5.1	98%	-1
Transport	11.1	11.8	11.8	11.9	12.0	109%	5
Industry	7.1	6.6	6.1	5.7	5.3	103%	1
Services	1.4	1.4	1.3	1.2	1.1	91%	-1
Residential	6.9	5.8	5.7	5.6	5.5	102%	0
Agriculture	23.4	23.4	23.3	23.2	23.1	110%	10
Other	1.9	1.9	1.9	1.9	1.9	106%	1
LULUCF	4.6	4.0	4.0	4.0	4.0	-	-
<b>Total</b>						<b>105%</b>	<b>16</b>

**Carbon Budget 1 = 311 Mt (vs target of 295 Mt)**



# Remaining Carbon Budget 1 & Sectoral Emission Ceilings

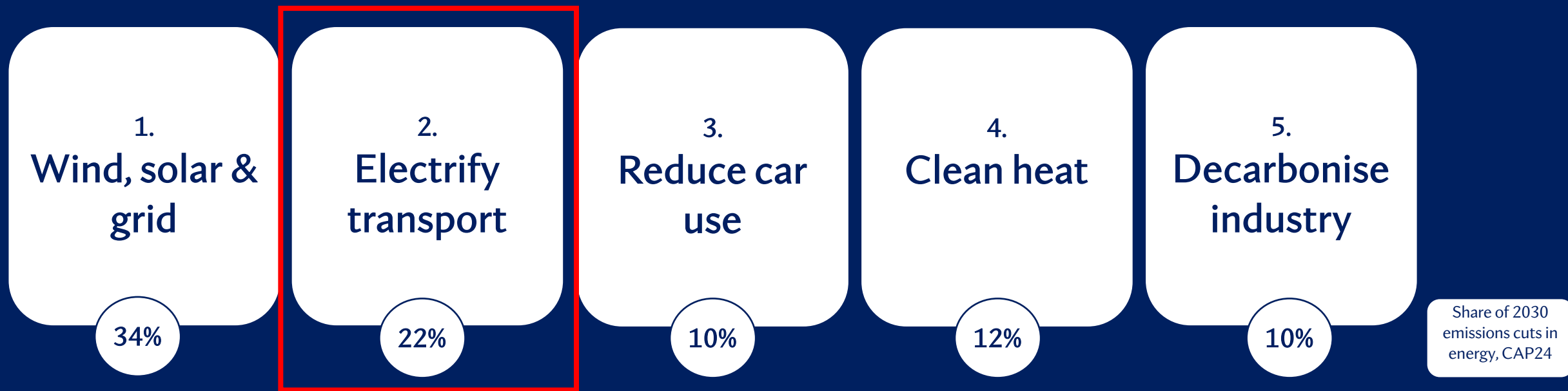
	2021-2025	EPA WEM	EPA WAM	<i>*2023 rates of change</i>
<b>Carbon Budget</b>	295	321	314	311
<b>Overshoot</b>	-	26	19	16

	2021-2025 (compared to 2018)	2021-2023 (actual change)	2024-2025 (required to meet CB1 target)
<b>Carbon Budget 1</b>	-4.8%	-3.3%	-12%

**How to remain within Carbon Budget 1 (and 2) targets?**

# No miracles necessary

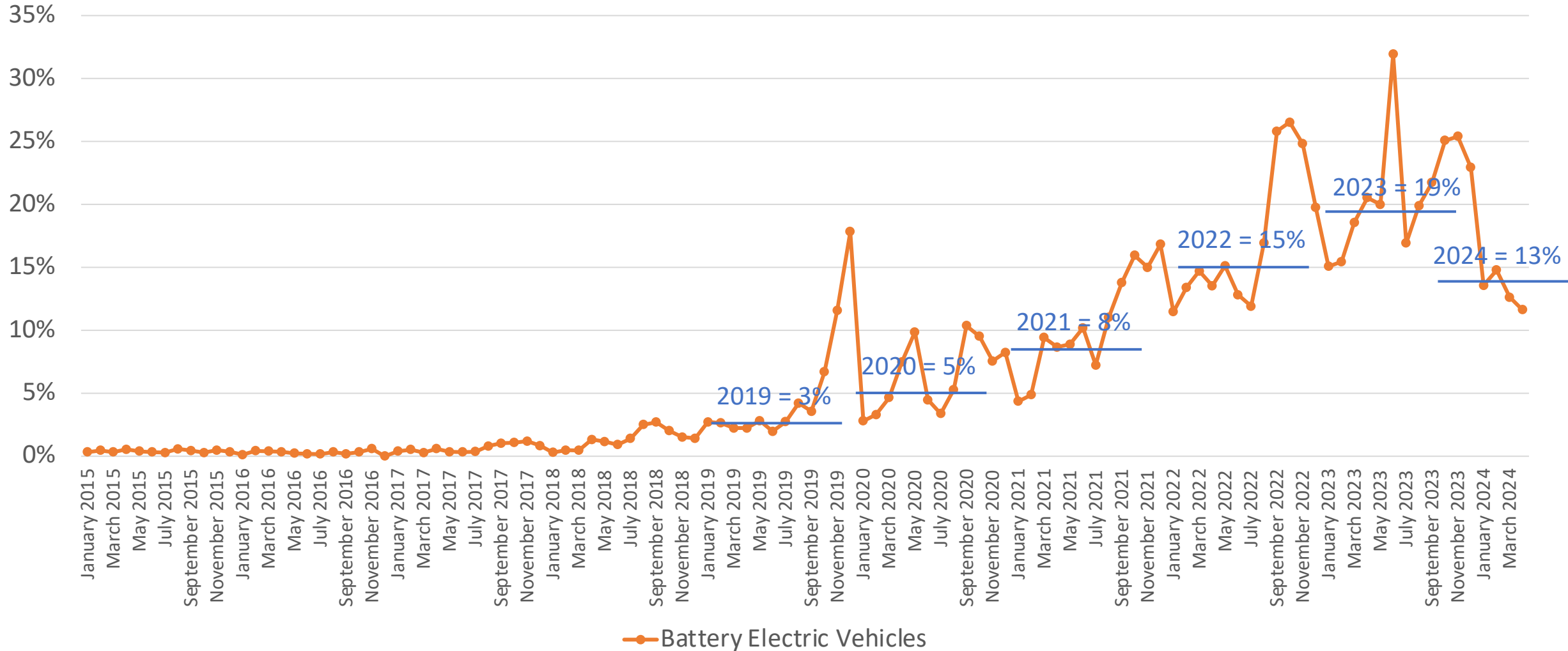
These 5 measures take us 90% of the way to our 2030 objective



**How to electrify transport?**

# Electric Car Sales in Ireland 2015-2024

## Share of Battery Electric Cars of New Car Sales (Jan 2015-March 2024)





# What is happening to sales of electric cars?

## The Irish Times view on the future of electric vehicles: the charge slows - for now

Irish motorists are willing to join the journey to electric, but need reassurances before they abandon the combustion engines entirely

Business / Cars

## No, the electric vehicle market isn't crashing. It just needs recharging.

By Peter Valdes-Dapena, CNN

© 5 minute read · Published 8:00 AM EDT, Wed May 1, 2024

Electric vehicles [+ Add to myFT](#)

## 'The early adopters have adopted': US carmakers slow their EV growth plans

Consumer appetite for battery-powered cars and trucks has fallen short of industry expectations

## Electric Cars Pass the Tipping Point to Mass Adoption in 31 Countries

Once 5% of new-car sales go fully electric, everything changes — according to a *Bloomberg Green* analysis of transitions underway across four continents.

BUSINESS

## EVs won over early adopters but mainstream buyers aren't along for the ride yet

FEBRUARY 7, 2024 · 5:01 AM ET

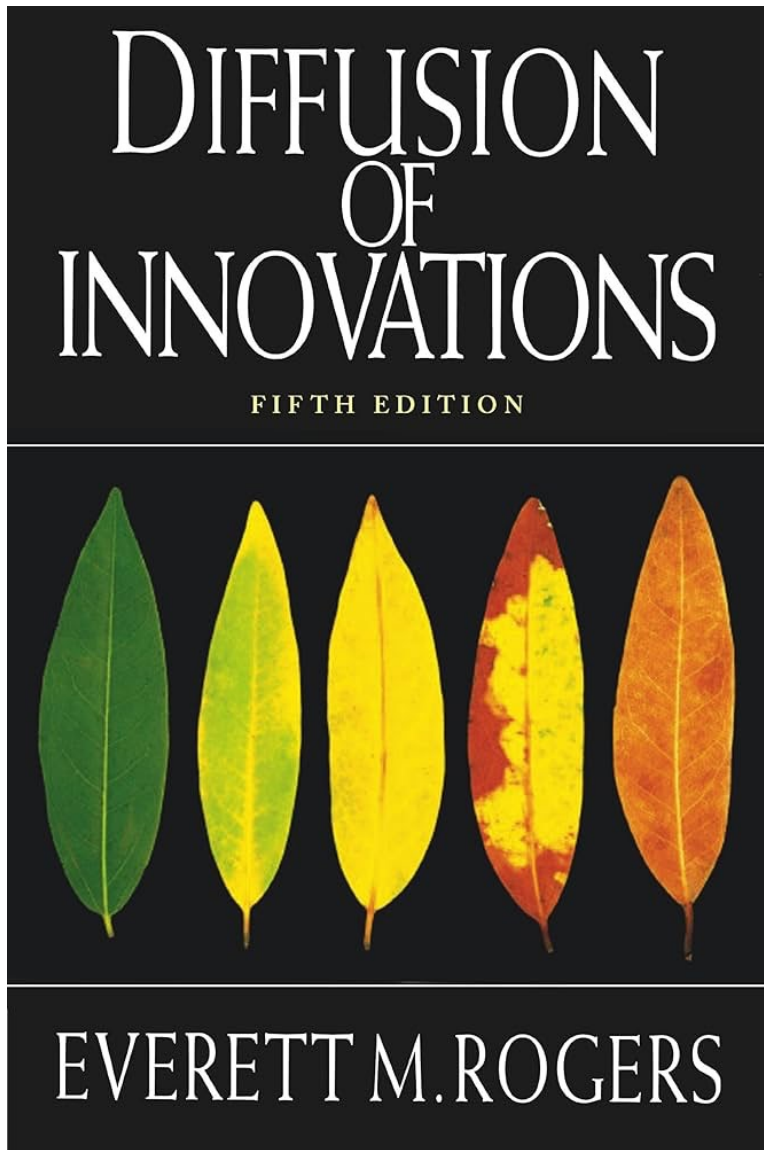
 Camila Domonoske

FORBES > INNOVATION > TRANSPORTATION

## Electric Vehicle Interest Moves Beyond Early Adopters, Study Says

*“Worried perspective”*

*“Optimistic perspective”*



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EM Rogers, A Singhal, MM Quinlan

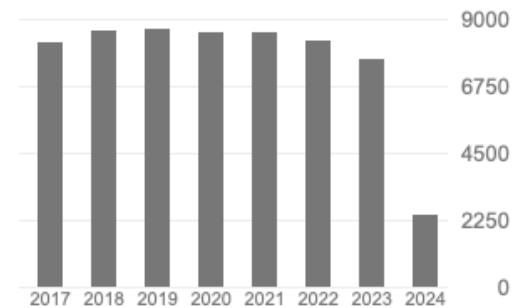
An integrated approach to communication theory and research, 432-448

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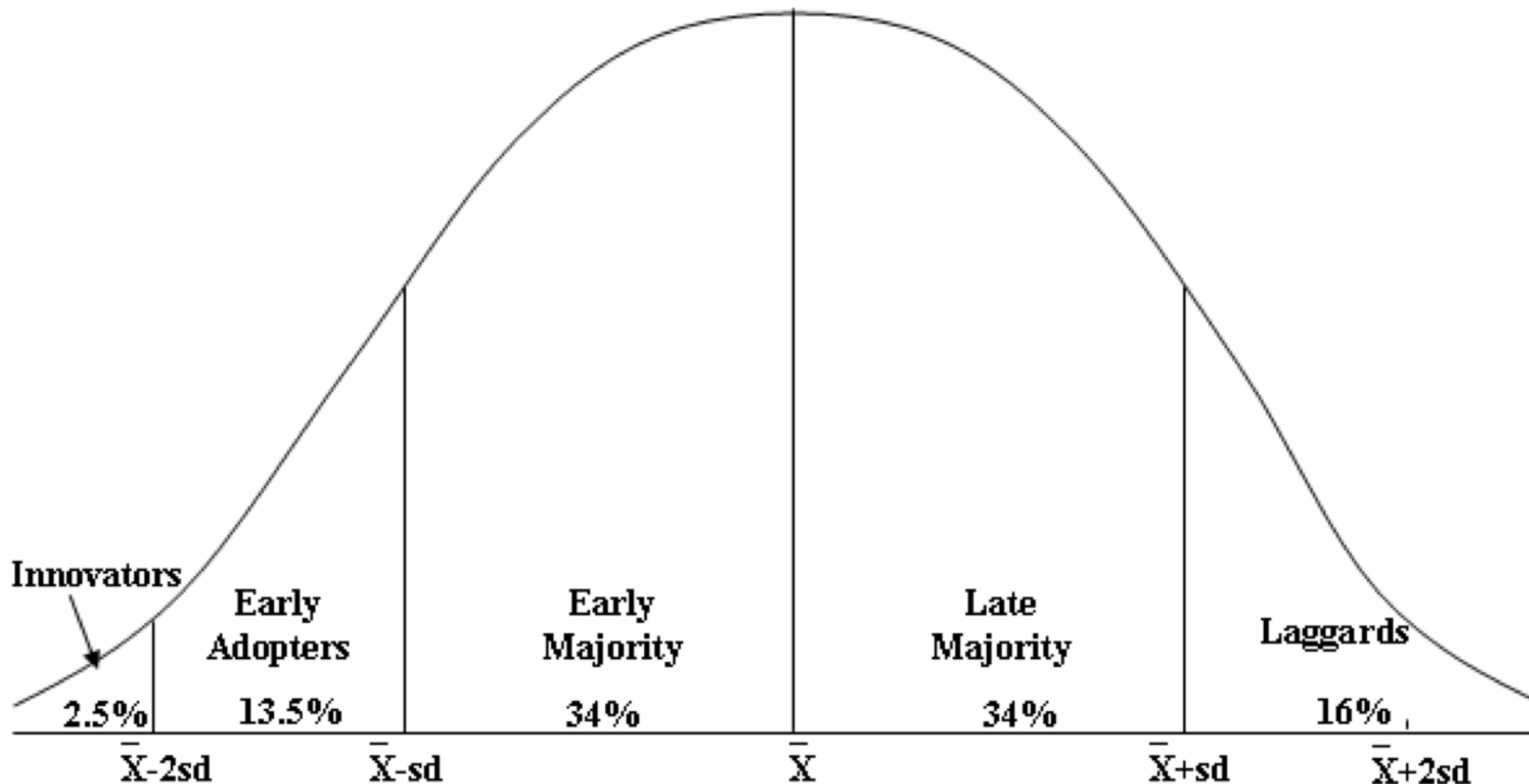
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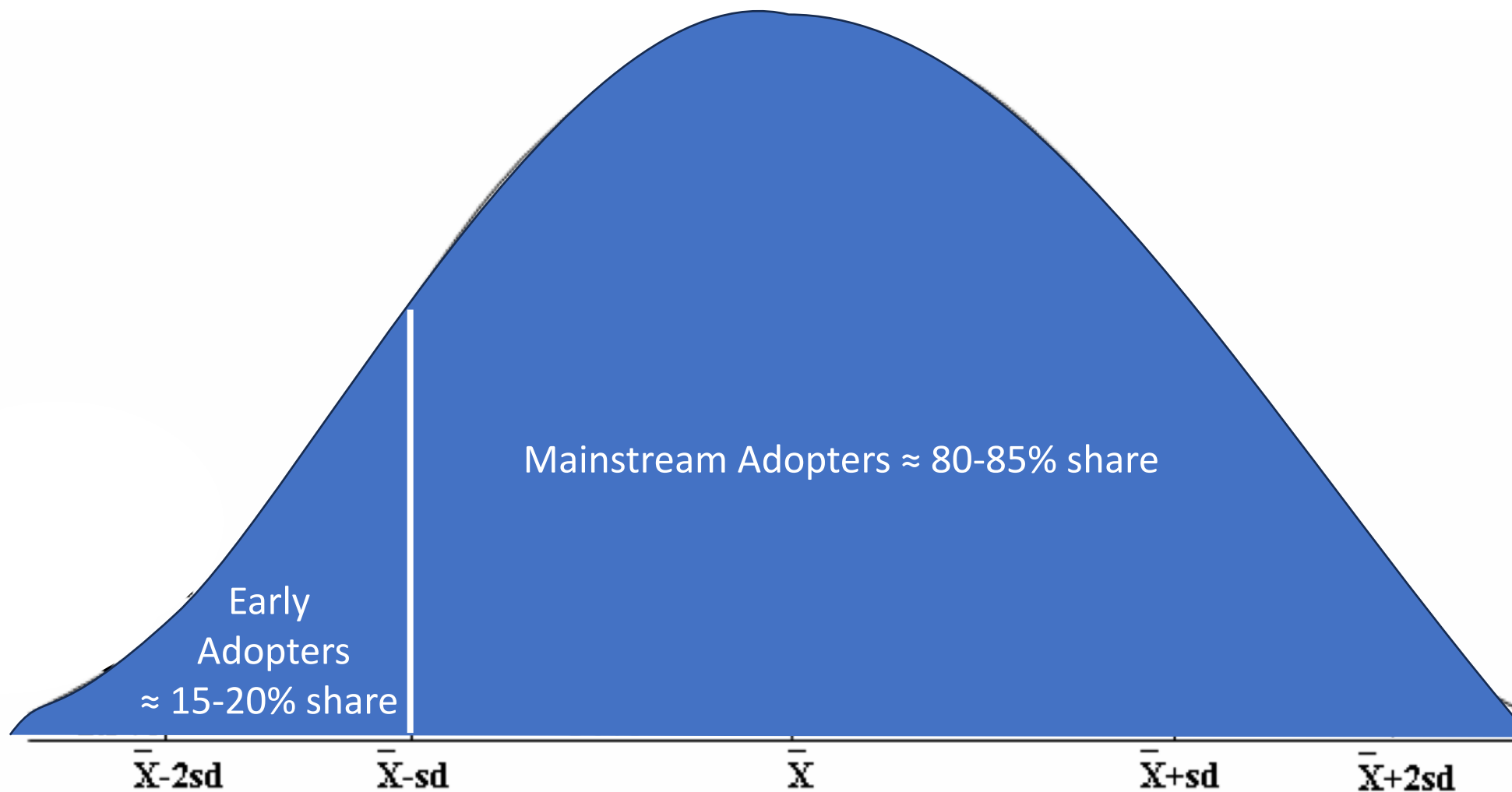
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# Categories of Adopter – 5 archetypes



## Categories of Adopter – 2 archetypes



# What are differences between early & mainstream adopters?

	Early adopters	Mainstream adopters
Socio-Economic Status		
Motivation		
Information		
Peer influence		
Risk		
Solution preferences		
Benefits		
Behaviour		

- E Rogers *Diffusion of Innovations*, 5th Edition (2003), published by Free Press
- C. Egmond, R. Jonkers, G. Kok *One size fits all? Policy instruments should fit the segments of target groups* **Energy Policy**, 34 (2006), pp. 3464-3474, [10.1016/j.enpol.2005.07.017](https://doi.org/10.1016/j.enpol.2005.07.017)
- C. Wilson, T. Hargreaves, R. Hauxwell-Baldwin *Benefits and risks of smart home technologies* **Energy Policy**, 103 (2017), pp. 72-83
- T. MacUidhir, BÓ Gallachóir, J Curtis, F Rogan. *Achieving the unprecedented: modelling diffusion pathways for ambitious climate policy targets* **Energy Clim. Chang.**(2022) Vol 3, 100073

# What are differences between early & mainstream adopters?

	Early adopters	Mainstream adopters
<b>Socio-Economic Status</b>	More likely to be wealthier	Less likely to be wealthier
<b>Motivation</b>	Environmental concerns; future opportunities; driven by initiative	Cost of product being economical; reaction to a need for compliance
<b>Information</b>	High level of knowledge; active searcher for information; relies on diverse sources of information	Knowledge restricted to standard products; passive recipient of information
<b>Peer influence</b>	Not strongly influenced by peers; confident in own judgement	Actively influenced by peers; external authority carries weight
<b>Risk</b>	Risk-taking; sees risks as manageable	Risk averse; avoids risks & uncertainty where possible
<b>Solution preferences</b>	Unique, bespoke, different	Standard solutions preferred
<b>Benefits</b>		
<b>Behaviour</b>		

## What are policy implications for engaging the mainstream? (*e.g. transport*)

- Policy mixes need policy measures that aren't overly reliant on higher upfront costs (*e.g. electrifying public transport, higher modal share of public transport, biofuel blending, lower transport PKM*)
- Compared to early adopters, mainstream adopters not as responsive to learning more about climate impacts (*e.g. public info campaigns v. important, but should be broader than just climate impacts to spur change*)
- Policy mixes needs to balance incentives with disincentives and mandatory compliance measures (*e.g. phase out dates, car parking management, pollution-based tax regime, etc.*)
- Vital for public investment to minimize risk and perception of risk for mainstream adopters (*e.g. electric vehicle public charging network needs to be robust - and seen as robust*)
- Information & testimonies from peers much more influential than from official sources. Change can happen fast.

## New project starting soon

- Collaboration between UCC & ESRI
  - Energy systems modelling
  - Economics & social research
- Project plan
  1. Test the theory, i.e. empirically validate adopter categories, characteristics for Ireland and policy measures (e.g. transport, buildings, etc.)
  2. Scenario analysis
    - Early adopters only
    - Early adopters + mainstream adopters
  3. Refine policy insights





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# Thank you

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