

Scale-up challenges & interaction effect of decarbonisation policy measures

-focus on transport

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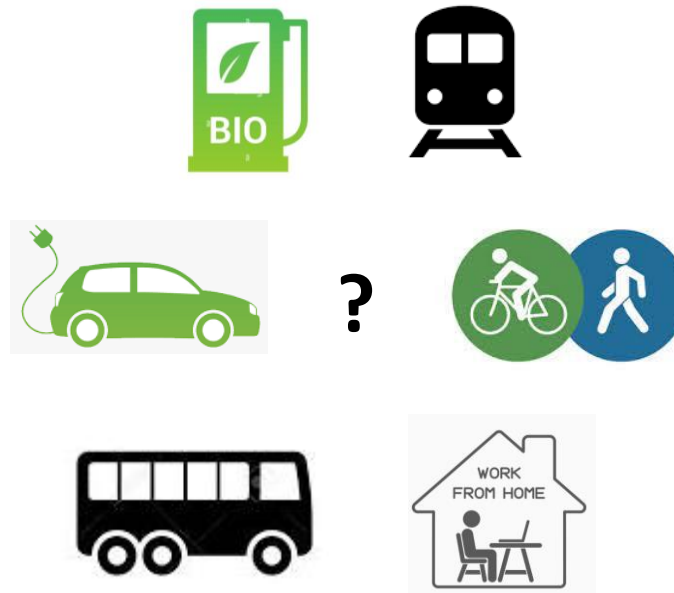


3 Research Questions

How **precedented** is
845,000 electric vehicles
by 2030?



What is **interaction effect**
of all passenger transport
policy measures?



How can policy support
scaling up?



How ***precedented*** is 845,000 electric vehicles by 2030?



Energy and Climate Change



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Achieving the unprecedented: Modelling diffusion pathways for ambitious climate policy targets

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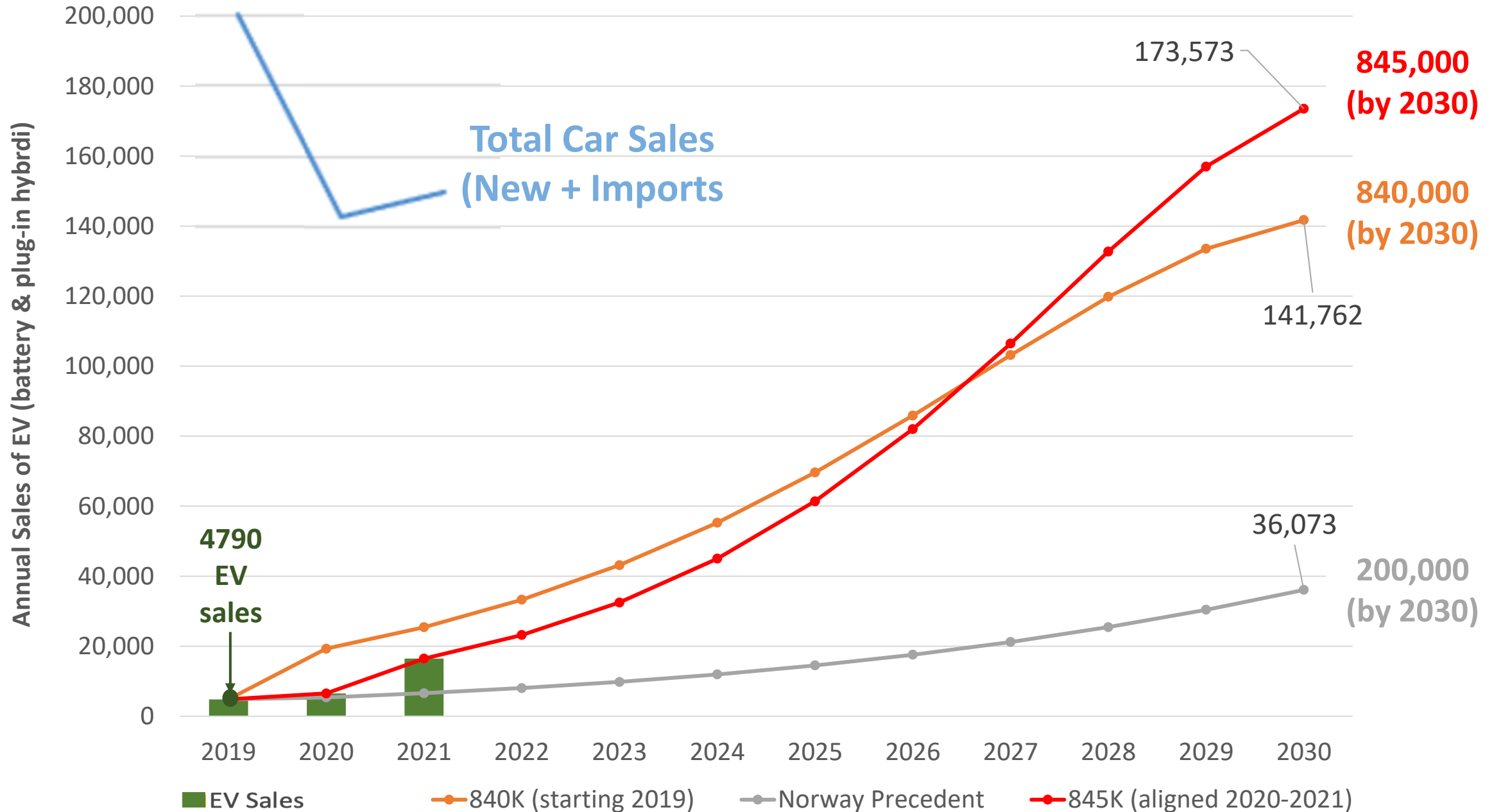
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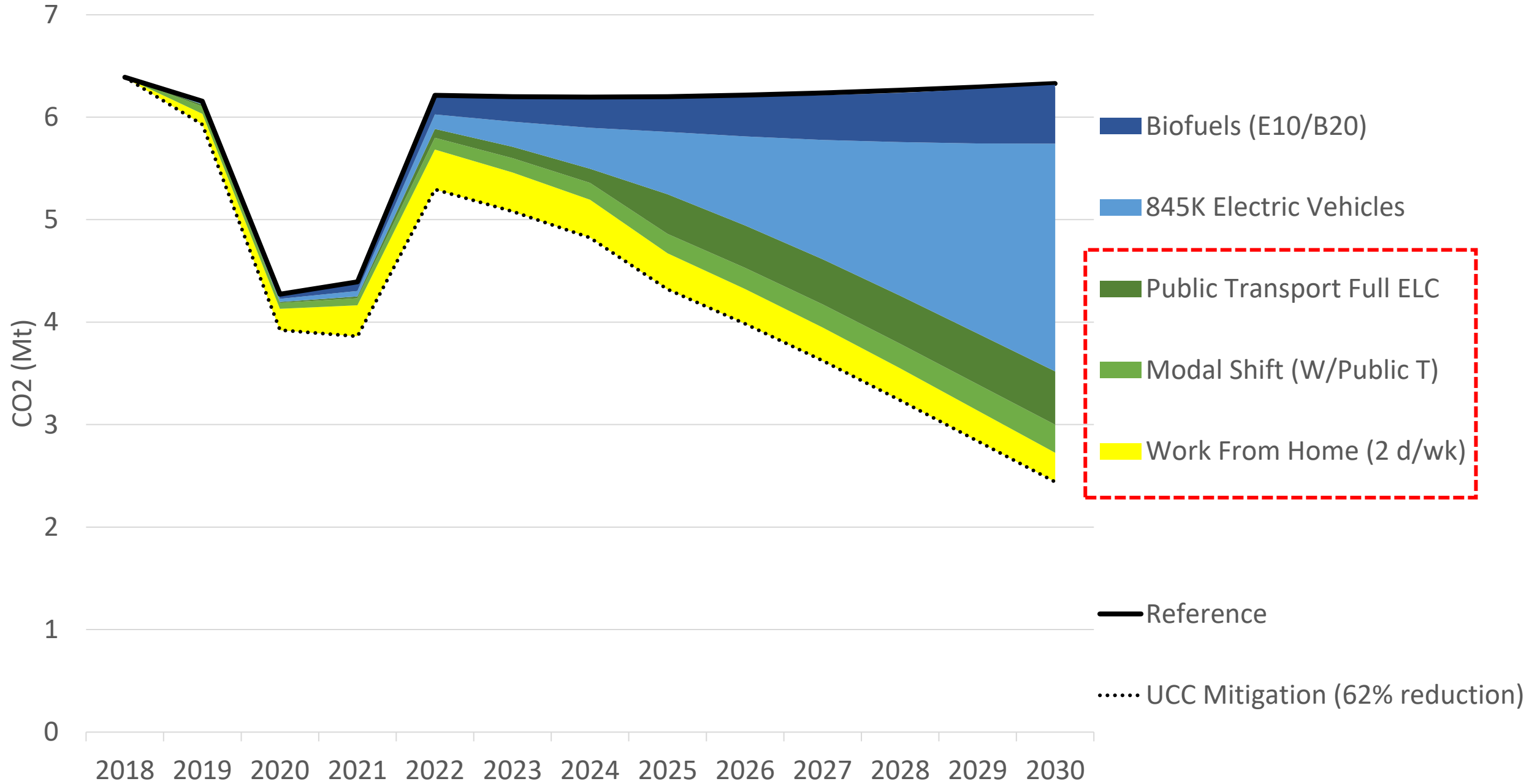
Highlights

- Bass diffusion model combined with a GHG simulation model.
- Scenario analysis of two of Ireland's headline policy targets: EVs and retrofit.
- Precedent scenarios deliver 25% of emissions savings, relative to policy compliant scenarios.
- Projected uptake indicates policy target shortfalls of 76% for EVs and 53% for retrofitting.
- Bespoke policy guidance for distinct innovation adopter categories.

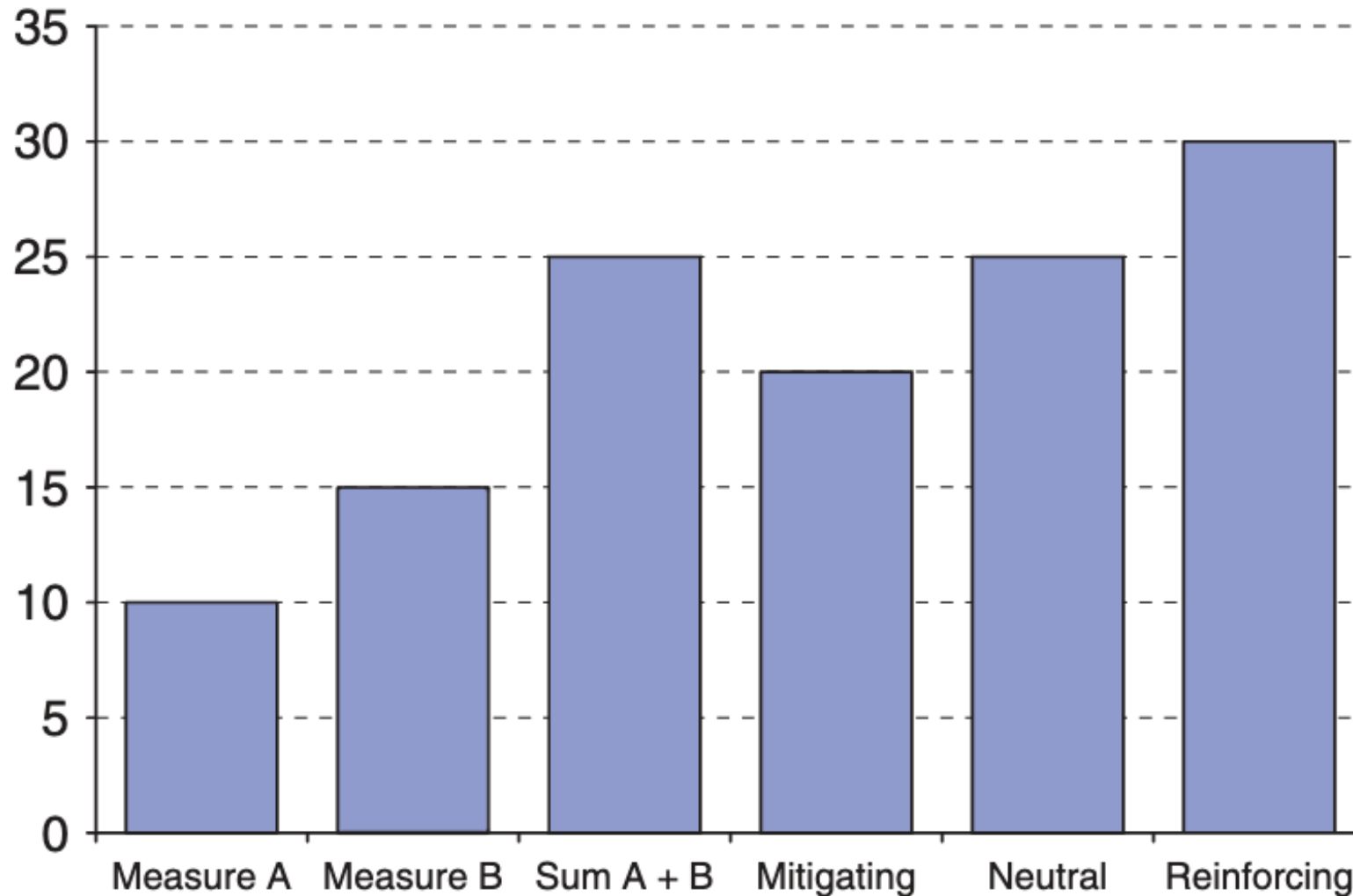
How precedented is 845,000 electric vehicles by 2030?



What is interaction effect of passenger transport policy measures?



What is the interaction effect between policy measures?



Source: (Boonekamp, 2006)

What is interaction effect of passenger transport policy measures?

	Modal Shift (500K trips & other*)	Electrify Public Transport	845,000 EVs	Biofuel Blending (E10/B20)	Work From Home (2 days/week & civil service 20%)
Modal Shift (500K trips & other*)					
Electrify Public Transport			neutral		
845,000 EVs					
Biofuel Blending (E10/B20)					
Work From Home (2 days/week & civil service 20%)					

What is interaction effect of passenger transport policy measures?

	Modal Shift (500K trips & other*)	Electrify Public Transport	845,000 EVs	Biofuel Blending (E10/B20)	Work From Home (2 days/week & civil service 20%)
Modal Shift (500K trips & other*)			-5%	-2%	-2%
Electrify Public Transport			neutral	-4%	-2%
845,000 EVs				-7%	-5%
Biofuel Blending (E10/B20)					-3%
Work From Home (2 days/week & civil service 20%)					

What is interaction effect of passenger transport policy measures?

	Modal Shift (500K trips & other*)	Electrify Public Transport	845,000 EVs	Biofuel Blending (E10/B20)	Work From Home (2 days/week & civil service 20%)
Modal Shift (500K trips & other*)		+13%	-5%	-2%	-2%
Electrify Public Transport			neutral	-4%	-2%
845,000 EVs				-7%	-5%
Biofuel Blending (E10/B20)					-3%
Work From Home (2 days/week & civil service 20%)					

How can policy support scaling up?

	Early adopters	Mainstream adopters
Socio-Economic Status	<ul style="list-style-type: none"> More likely to be wealthier 	<ul style="list-style-type: none"> Less likely to be wealthier
Motivation	<ul style="list-style-type: none"> Environmental concerns Driven by initiative 	<ul style="list-style-type: none"> Cost of product being economical Reaction to a need for compliance
Information	<ul style="list-style-type: none"> High level of knowledge Active searcher for information Relies on diverse sources of information 	<ul style="list-style-type: none"> Knowledge restricted to standard products Passive recipient of information
Peer influence	<ul style="list-style-type: none"> Not strongly influenced by peers confident in own judgement 	<ul style="list-style-type: none"> Actively influenced by peers External authority carries weight
Risk	<ul style="list-style-type: none"> Risk-taking Sees risks as manageable 	<ul style="list-style-type: none"> Risk averse Avoids risks & uncertainty where possible
Solution preferences	<ul style="list-style-type: none"> Unique, bespoke, different 	<ul style="list-style-type: none"> Standard solutions preferred
Benefits	<ul style="list-style-type: none"> Perceive benefits strongly 	<ul style="list-style-type: none"> Good enough is sufficient
Behaviour	<ul style="list-style-type: none"> Leads Contrarian 	<ul style="list-style-type: none"> Follow Conformist

Source: (Mac Uidhir et al, 2022) based on diffusion of innovation literature review

3 Research Questions

How **precedented** is
845,000 electric vehicles
by 2030?

*Recent EV sales are
unprecedented but still
below level to reach
2030 target*

What is **interaction effect**
of passenger transport
policy measures by 2030?

*Interaction effect usually
reduces CO₂ savings by 2-
7%*

*Increased usage AND
electrification of public
transport can **increase**
CO₂ savings*

How can policy support
scaling up?

*Focus on attributes of
mainstream adopters*

Thank you
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Car Sales: 2019-2021

	2019	2020	2021
New	115,000	84,000	102,000
Imports	108,000	79,000	68,000
Total	223,000	163,000	170,000

**Modal
Shift
Policy
Measures**

Additional 500K public transport & active mode trips

Bus Connects in all cities

Increased cycling distances & e-bikes

Increased School Buses

Light Rail (Cork, Limerick, Galway)

Luas extension to Finglas (Fingluas)
