

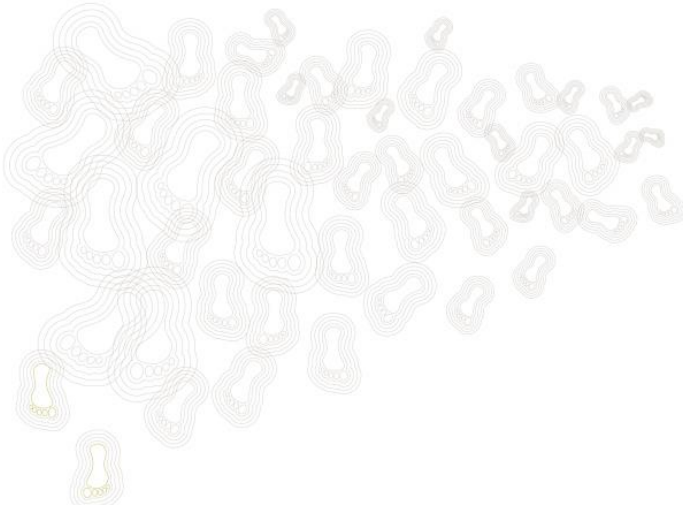


CO₂ Emissions in Camden – Could we get to “Net Zero” 2030?

Chris Dunham
Carbon Descent

CD Analysis


Study Year	Camden Target	National Target
2007	?	60% by 2050
2010	40% by 2020	80% by 2050
2018/19	% achievable by 2030	80% by 2050
2021	Net Zero by 2030	Net Zero by 2050



Meeting 40% Carbon Emissions Reductions by 2020
 Version 2.1 FINAL REPORT
 22nd July 2010

Prepared for: London Borough of Camden
 Prepared by: Jo Southernwood

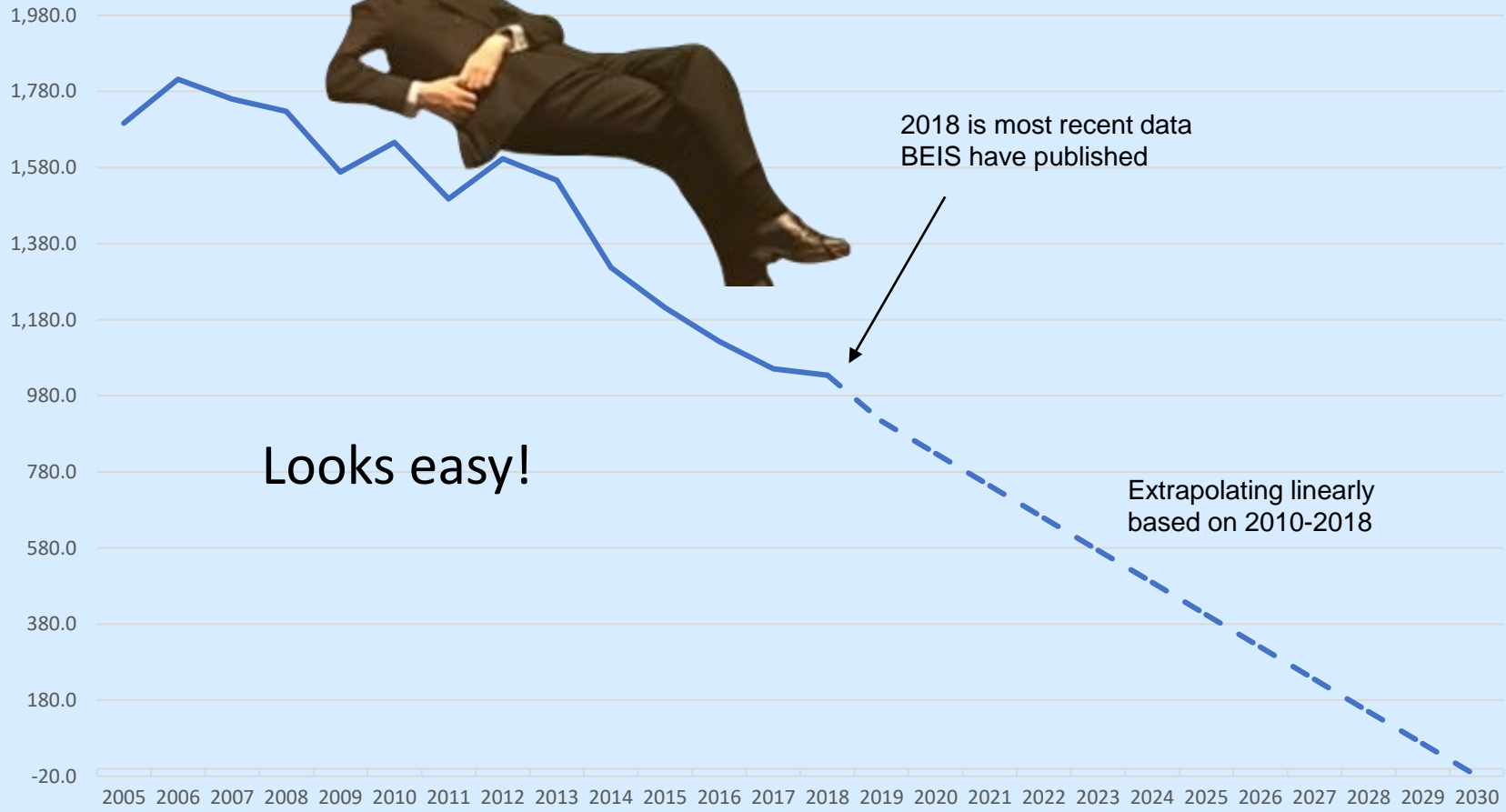
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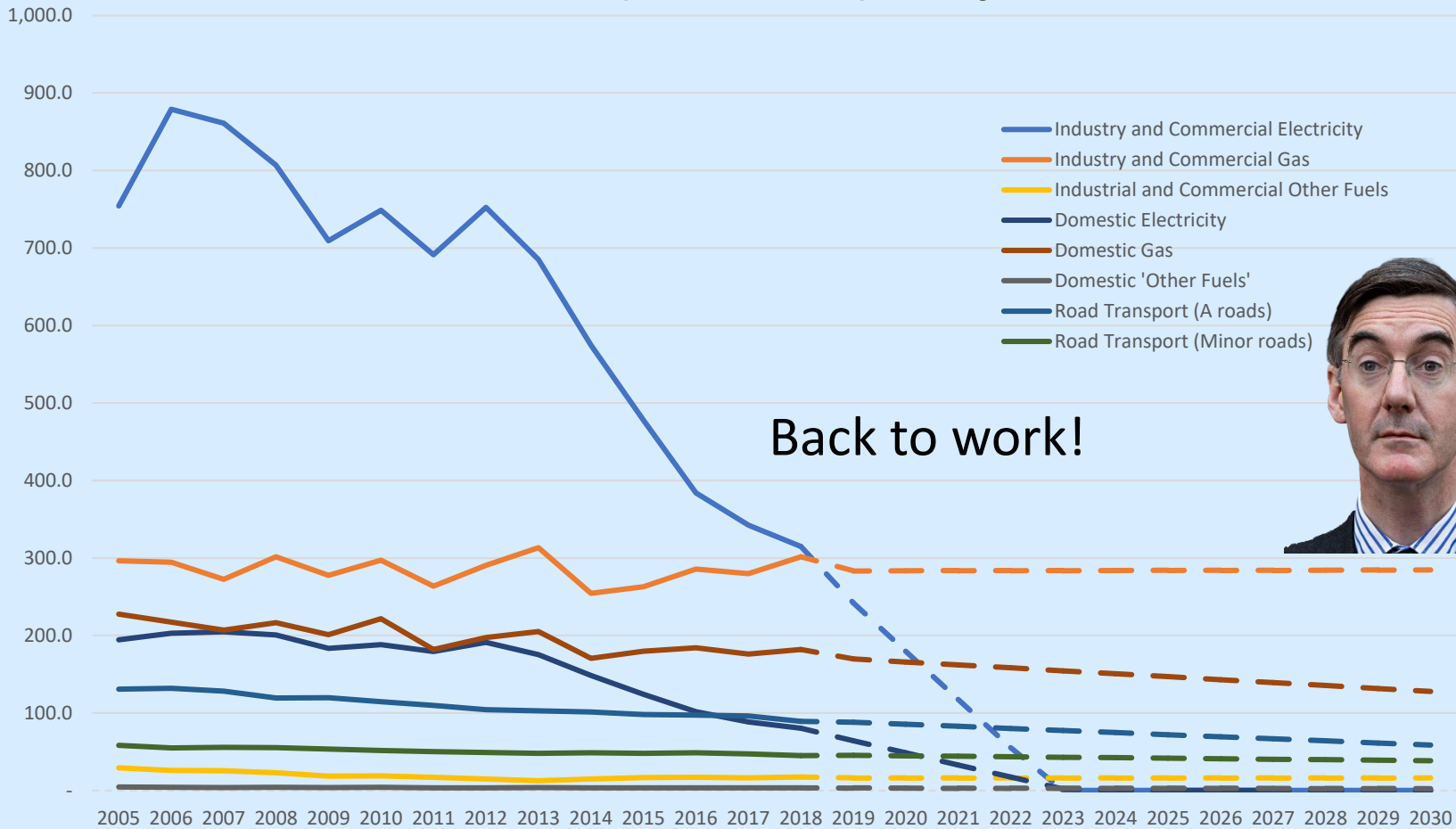
Based on Recent Trends...

Camden CO2 (BEIS LA Stats) & Projections



However if we break it down by sector/fuel

Camden CO2 (BEIS LA Stats) & Projections

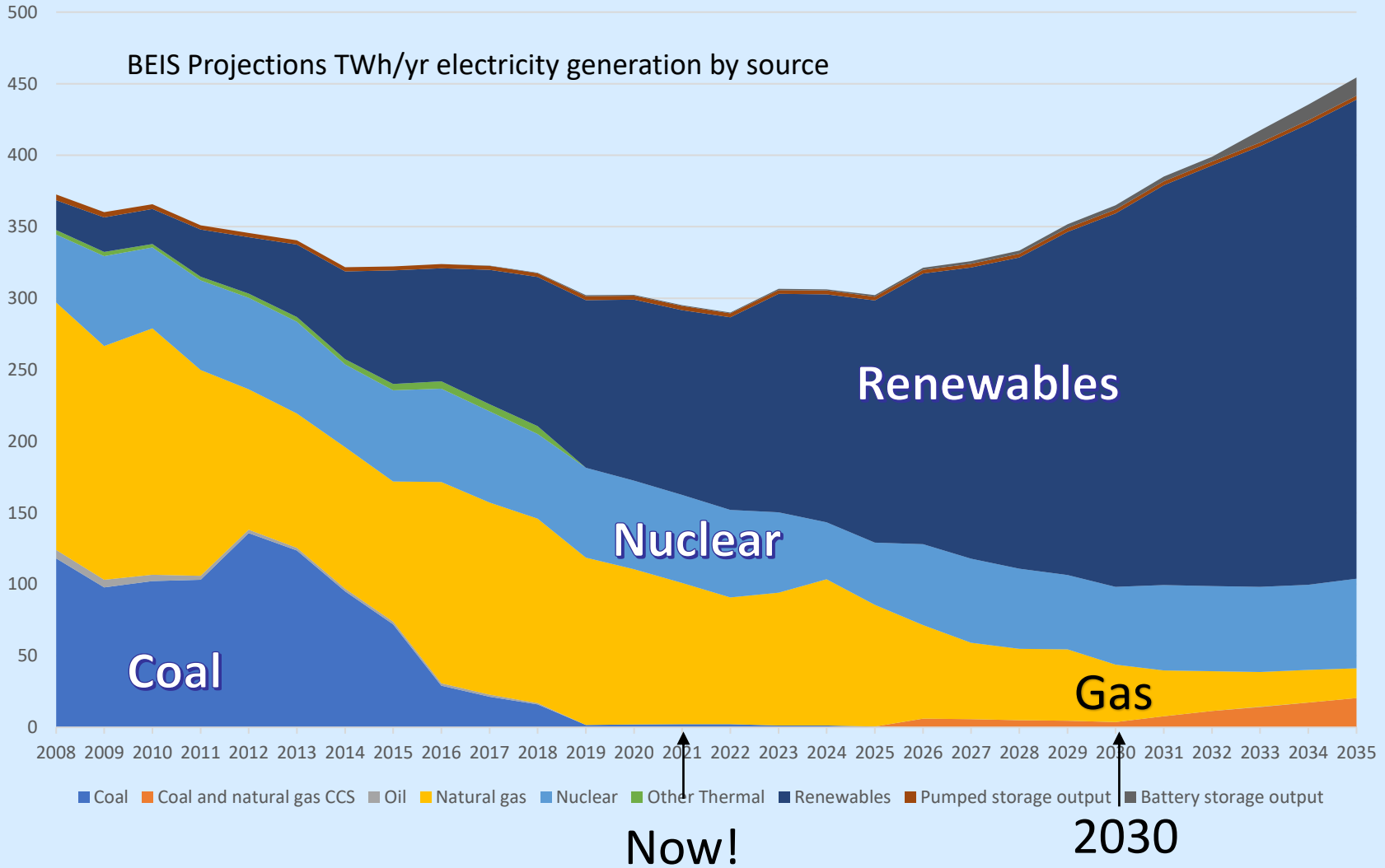


Back to work!



Gas/Petrol/Diesel related CO2 slow or non-existent decline & elec won't be zero by 2023

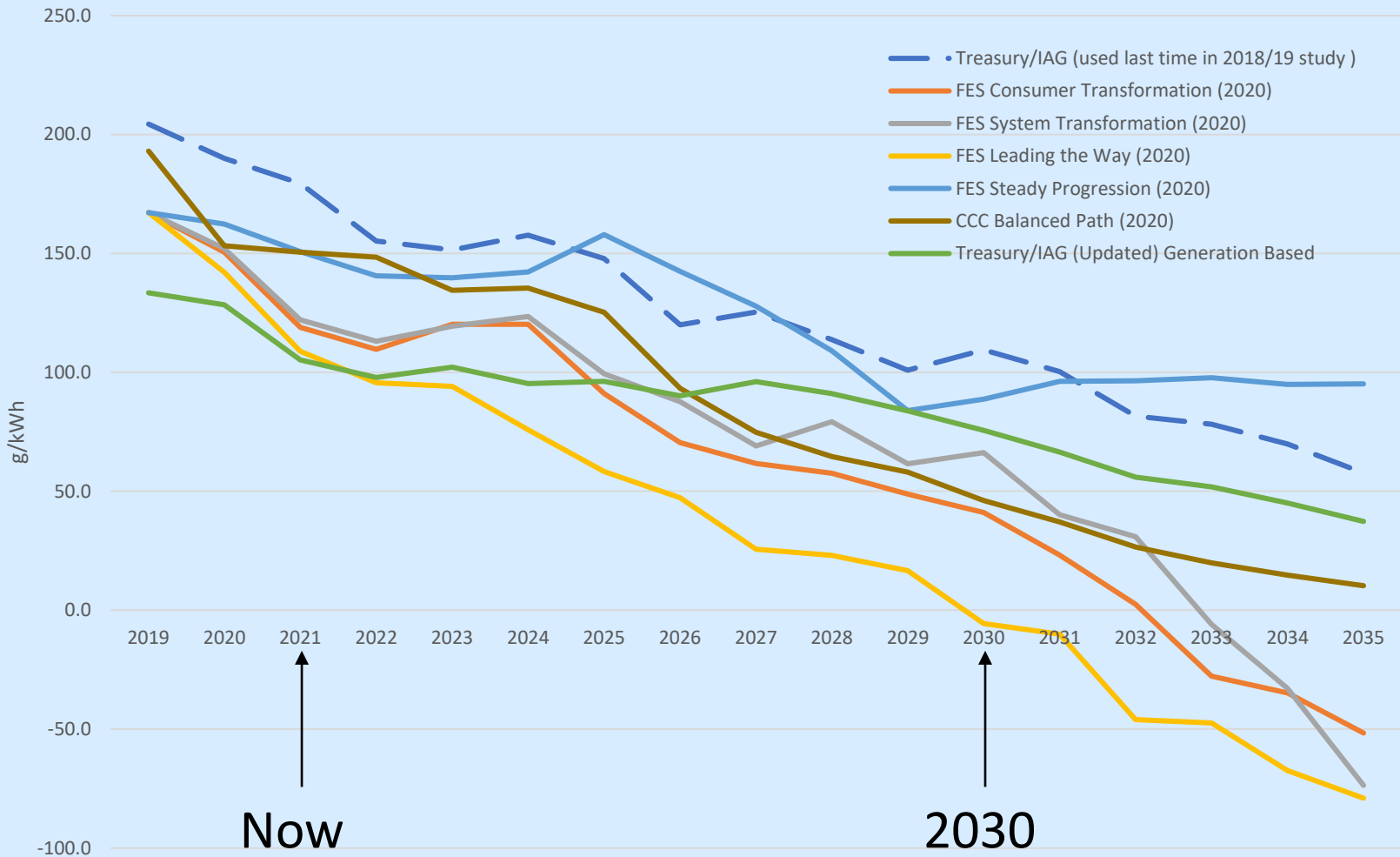
Grid Electricity not Zero C in 2030



UK Grid Factor Projections

Speeding up. Latest projections faster decline than used in 2018/19 study

UK Electricity Grid Factor Projections g/kWh



Complexity of Accounting

Reliant on BEIS Stats and Method

A mix of production and consumption based

Local renewable generation not counted locally

Road traffic emissions based on road length and road counts to allocate national transport emissions from the top down.

What happens with EVs?
Most charging likely conducted at or near home.
So Brighton journey now reallocated allocated entirely to Camden?

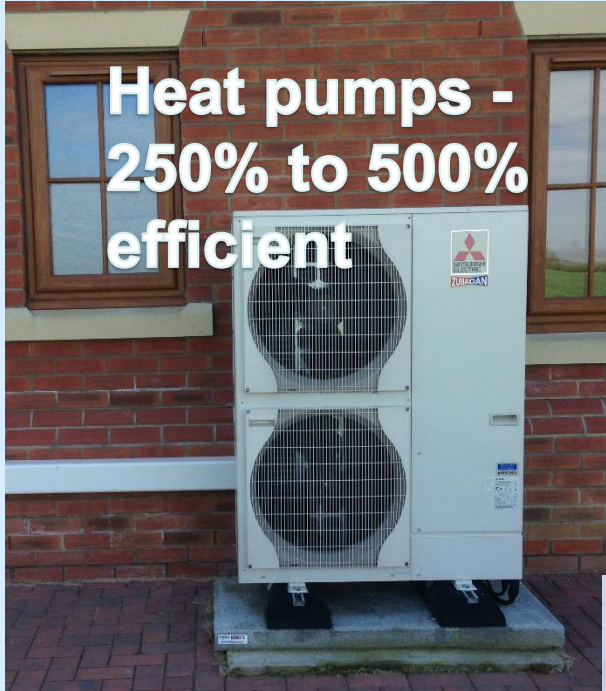
Emissions by a Camden resident driving to Brighton are currently allocated to all the authorities along the road length.

What needs to happen?





Key technologies



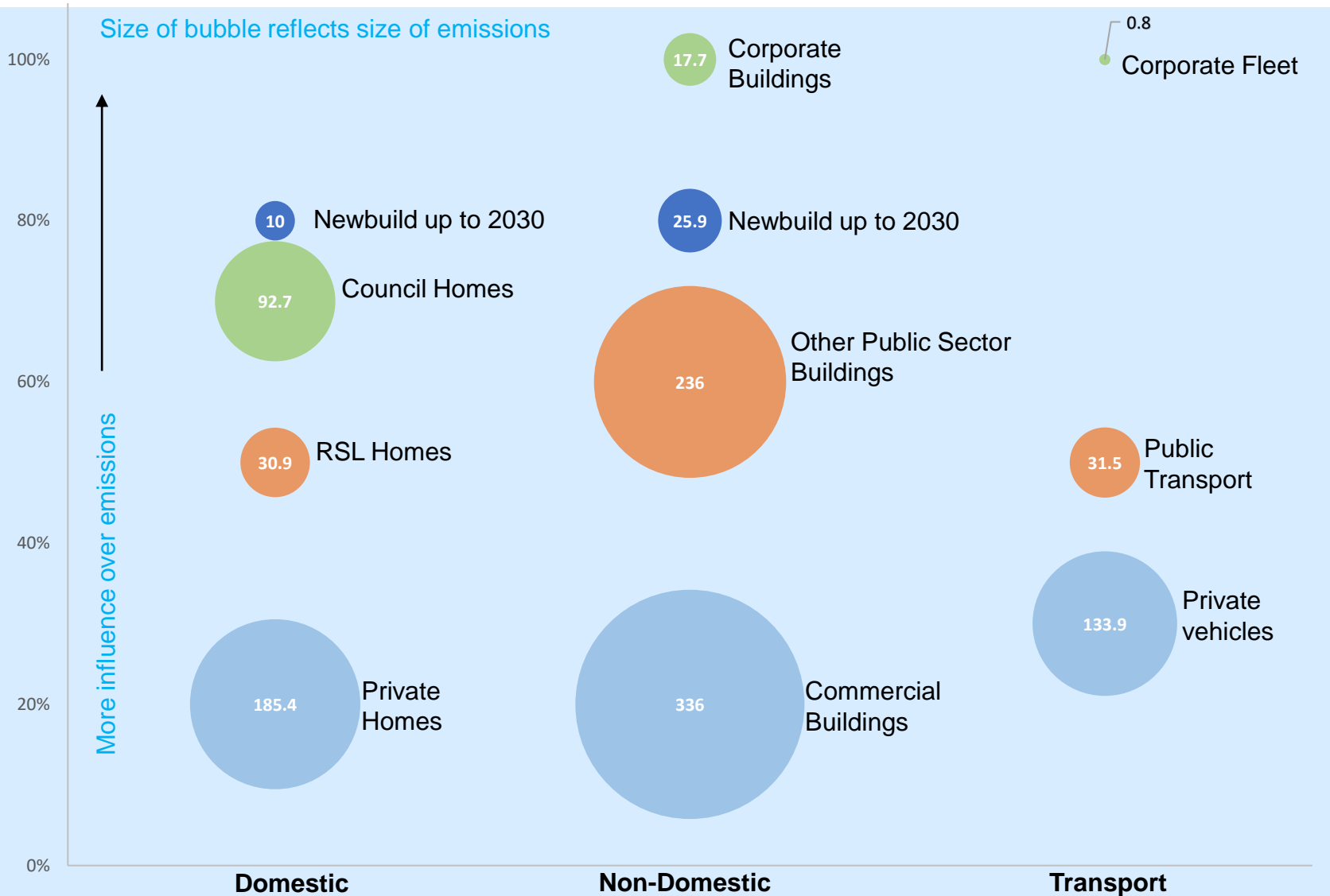
Challenges...



1. Camden Buildings Types



2. Influence over Emissions



3.Lifespan vs 2030 Target

	Lifespan	Replacement Technology	% Already Replaced	Current Rate
Gas Boilers	15yrs	Heat Pump	0.055%	<0.1%
ICE Cars	14yrs	EV	1.4%	10%
Homes	443yrs			
Non-domestic floorspace	56yrs			

Impact of Newbuild vs Demolition

CO2 Impact of Newbuild & Demolition ktpa in 2030



2018/19 Study

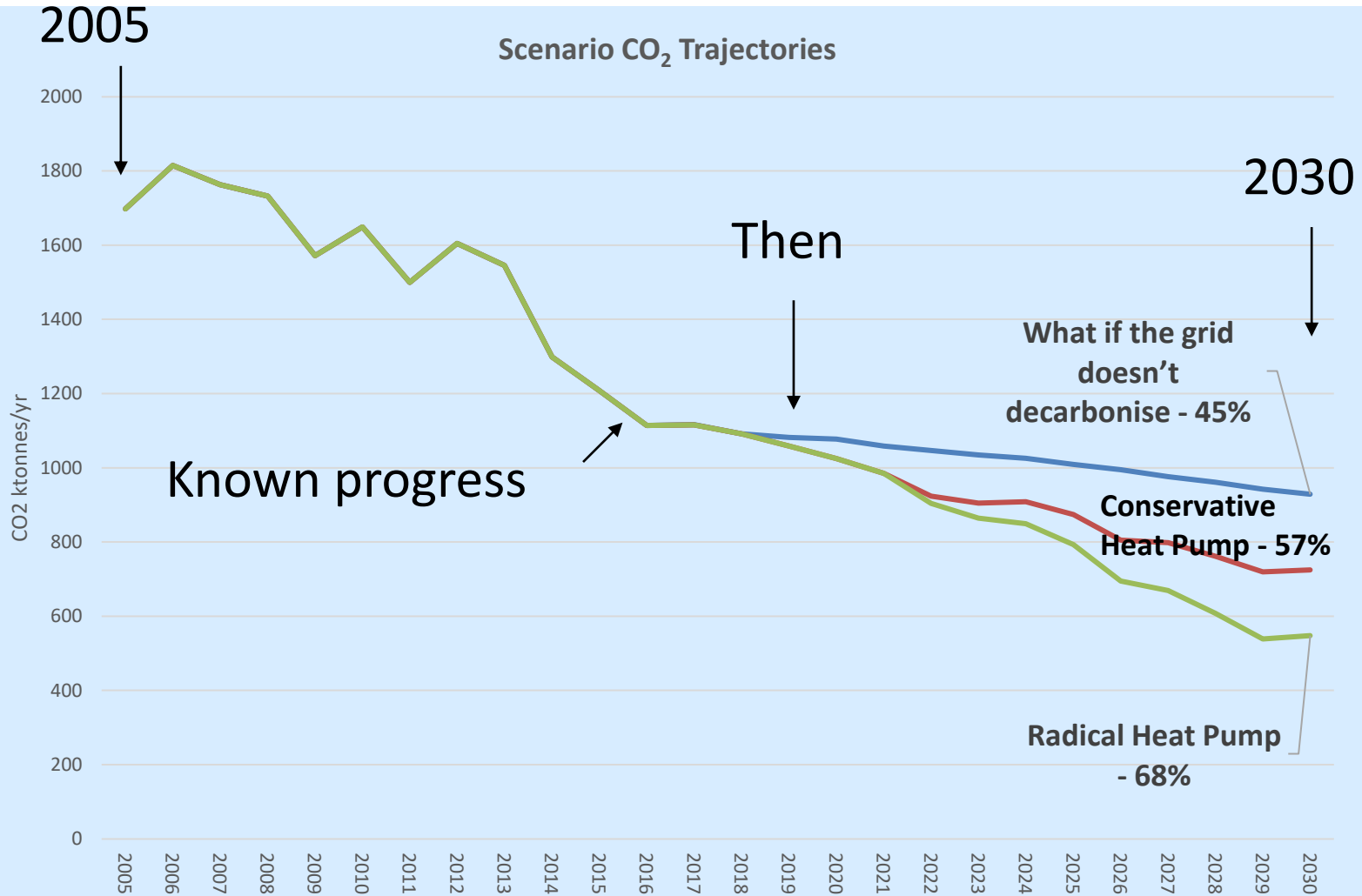


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What we modelled – by 2030

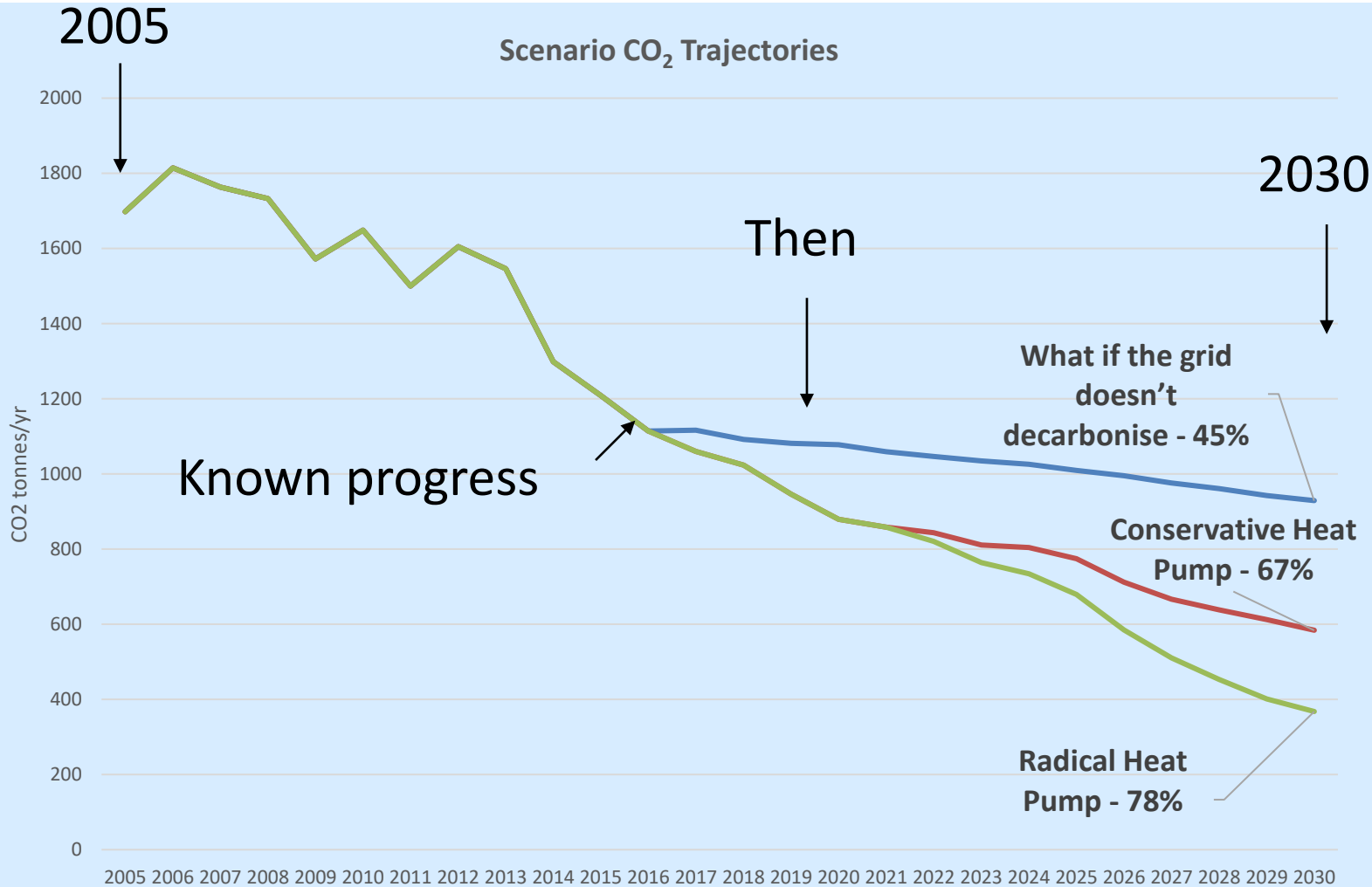
Measure	Conservative Heat Pump Scenario (Cumulative)	Radical Heat Pump Scenario (Cumulative)	Units
Heat pumps	All	All	Newbuild from 2022
Heat pumps	4,800	54,000	Existing homes
Heat pumps	0%	53%	Non-domestic Heat
Insulation package	9,950	9,950	Existing homes
LEDs	All	All	Lamps in homes
Domestic Appliances	Continuation of current trends	Continuation of current trends	All homes
LEDs & Motor efficiency	Continuation of current trends	Continuation of current trends	All existing non-domestic buildings
Demolition & Newbuild	236/1320	236/1320	Homes
Solar PV	64	64 2kW on 1/3 of homes	MW
Reduce vehicle km	15%	15% In context of increasing population	Vehicle km
Electric cars & buses	40%	40%	Vehicle km
Grid Decarbonisation	60%	60%	Reduction from 2016

Results of 2018/19 Camden Study



Does not get us to zero (obviously)...

Results of 2018/19 Study with 2020 grid projections



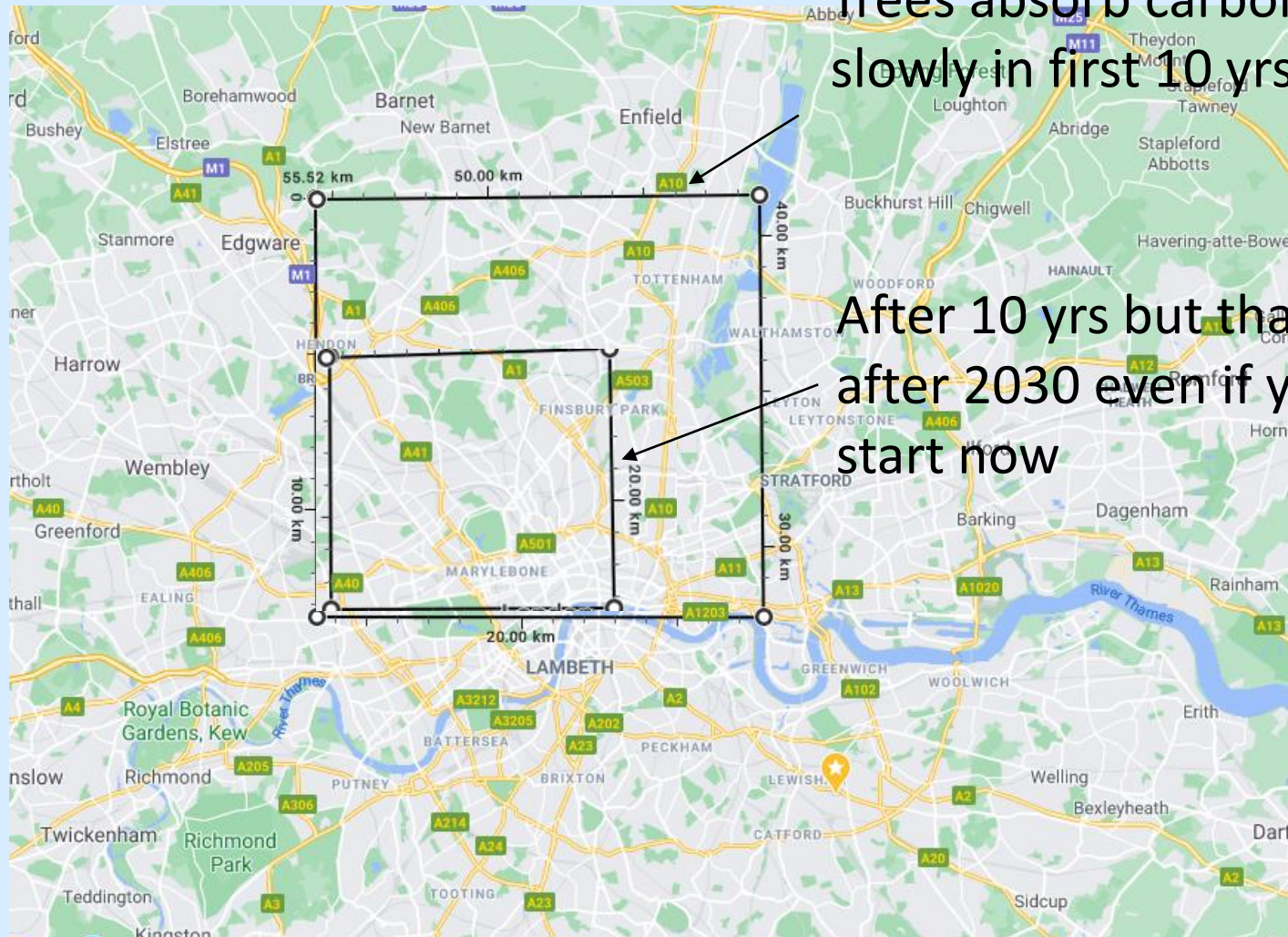
Still does not get us to zero...

What about the “Net”?

- > “Net” Zero or Carbon “Neutral” implies emissions may be offset by some removals
- > Tree planting/Reforestation sounds cheap and easy... But how much land?



Tree Planting Area Required

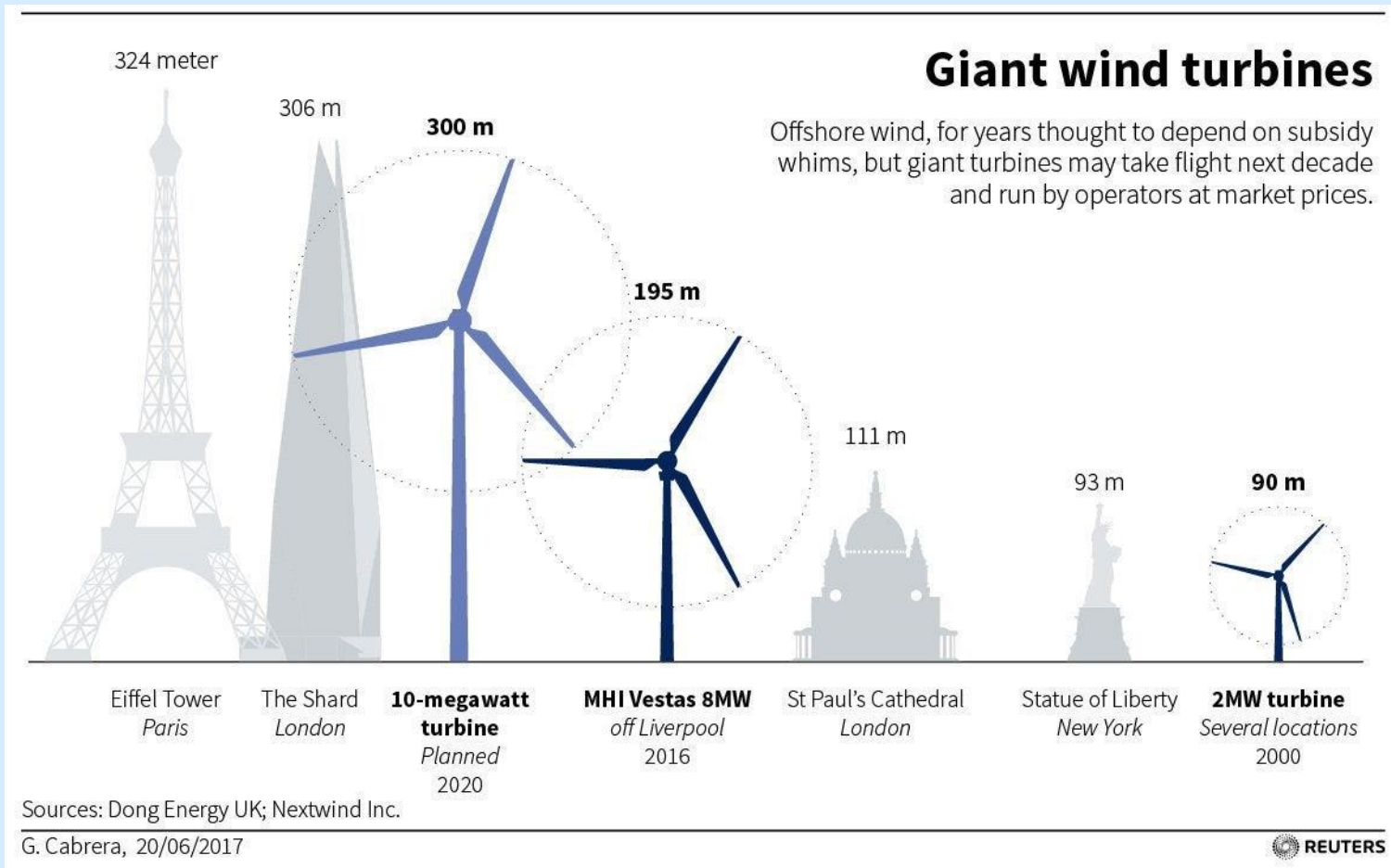


Trees absorb carbon slowly in first 10 yrs

After 10 yrs but that's after 2030 even if you start now

Or in Wind Turbines

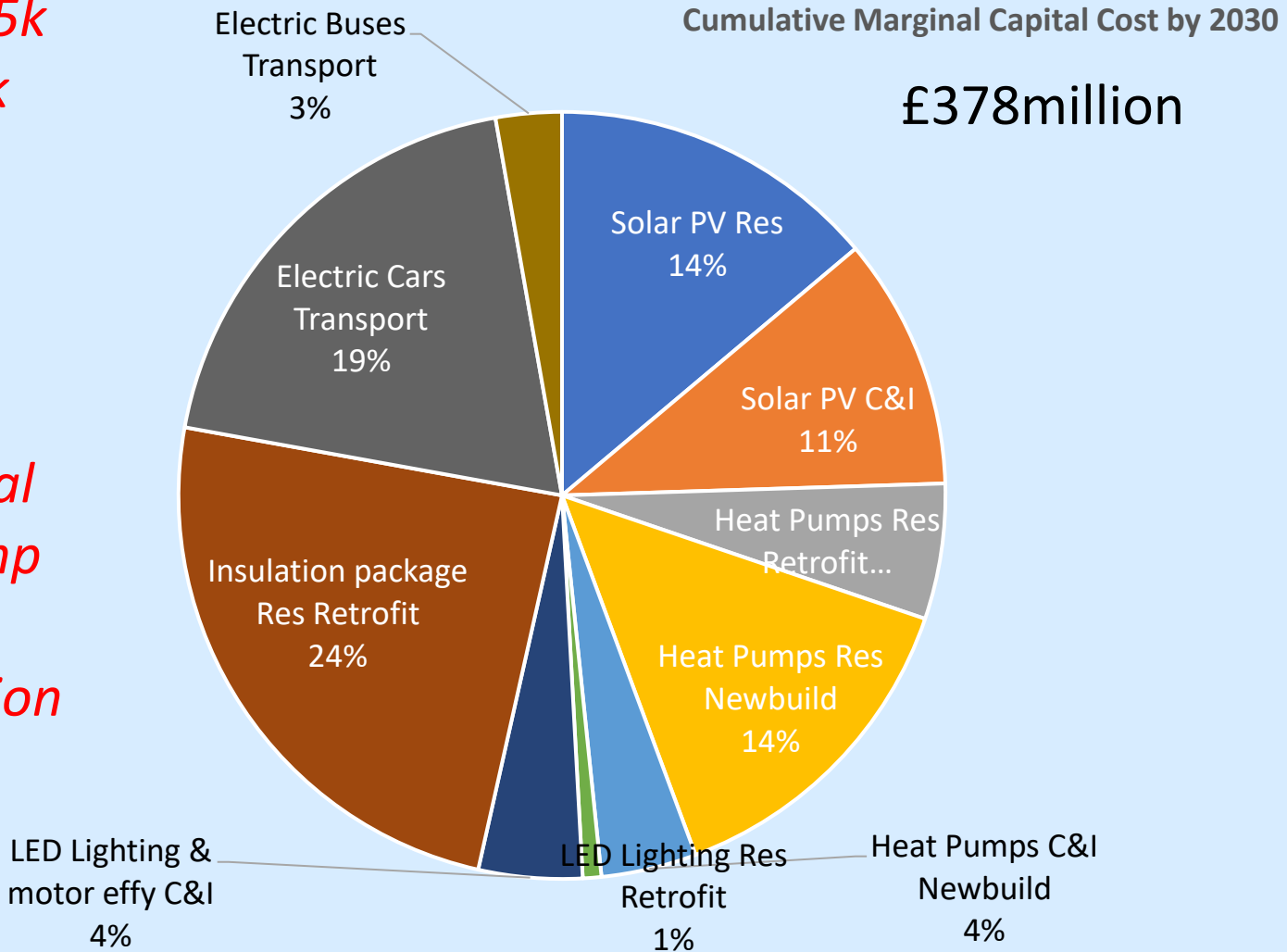
- > 26 x 10MW offshore wind turbines (70 on Hampsstead Heath)



2018/19 Study Results – What Will it Cost?

*Boiler £2.5k
HP £7-14k*

*For radical
heat pump
scenario
£908million*



2021 Study Brief

Scenarios to be Modelled

	Name	Insulation	Heat Pumps	Car use	PV
1	Govt/Mayoral Projections	As previously but updated	As previously but updated	As previously but updated	As previously but updated
2	All electric but medium PV, insulation, HPs	Lofts, cavities and non-conservation area solid walls	Camden Estates on ASHPs, communal or individual , direct electric plus solar thermal in private rented. ASHPs	10% reduction in car miles	Medium ambition
3	All electric, all HPs	Lofts, cavities and non-conservation area solid walls internally insulated	ASHPs everywhere		Medium ambition
4	All electric, all HPs	Lofts, cavities and non-conservation area solid walls internally insulated	Combined heating and cooling heat pumps below Euston Rd. Above that aquifer fed heat pumps for communal estates. Kensa style ambient loop heat pumps elsewhere?		High ambition
5	Net Zero	enerPHIT everywhere inc conservation areas	Combined heating and cooling heat pumps below Euston Rd. ASHPs everywhere else	90% reduction in car use	As much as feasible plus how many MW of wind on Hampstead Heath to power residual

Other emission sources exist...



Conclusions

- > How close can Camden get to Net Zero by 2030? – to be continued!
- > Main challenges are:
 - » Cost
 - » Planning constraints
 - » Lifespan of incumbent technologies
 - » Camden's limited powers (and budget)
 - » Reliance on Grid decarbonising completely

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