

Where are we now?

Introduction to a zero carbon tool

Mark Letcher - Climate Works Ltd

Qu) What if we want to
get on with this?

Qu) And can we put
some numbers on it?

Zero carbon tool

- ▶ Simple to use
- ▶ Transparent
- ▶ Builds on approach taken in Frome
- ▶ 'Sustainable Energy Without The Hot Air'



Ready reckoner draft version 5 05-06-2018.xlsx

Calibri (Body) 10 B I U % , .00 .00 150% ?

Home Layout Tables Charts SmartArt Formulas Data Review

Edit Font Alignment Number Format

Paste Fill Clear Calibri (Body) 10 A A B I U Wrap Text Merge Number % , .00 .00 Conditional Formatting Normal Bad

I14 fx ='Baseline car use'!B37+'Baseline car use'!B38+'Baseline car use'!F37

	A	B	C
1	Start here		
2	To get started enter the three bits of information about your village, or town below		
3			
4			
5	Information	Enter numbers below	Notes
6	Population - how many people live in your village, or town?	20,000	
7	What percentage of households use mains gas for their heating?	83	Nationally the figure is 83%. Enter the percentage between 0 and 100 for your area.
8	In how many years do you want to be 'zero carbon'? E.g 20, 30, 40 etc	40	In this context carbon refers to the emissions arising from domestic heat and power, and personal transport.

MS Excel

Start with 3 numbers

- Population
- Proportion of homes on mains gas
- How quickly you want to get to 'zero carbon'



Then add.....

- Energy efficiency
- Demand reduction thru:
 - Behavioural
 - Technical measures



And....

- % of electric vehicles



What it shows

- Baseline heat and power
 - Fuel mix
 - Estimate annual energy demand and CO₂ emissions
 - Before & after energy efficiency measures
 - Est totals
 - Est per household
 - Est per person
 - Est per person per day
- References and sources

Item			Note	Source reference
Population	20,000			Provided by the user
Estimated number of households	8,696		According to Office of National Statistics on average there are 2.3 people per household in the UK	https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesfortheunitedkingdom/2011-03-21
Estimated number of homes using different fuels for heating				
Percentage of homes using mains gas for heating (%)	83		Nationally the 83% of homes are on mains gas. The user can enter a figure for their area	Heat in homes: customer choice on fuel and technologies. Richard Hoggett University of Exeter. http://geography.exeter.ac.uk/staff_profile_images/Hoggett2011_Heat_in_Homes.pdf
Percentage of homes using other fuels for heating (%)	17		Calculated estimate	
Estimated no of homes using mains gas for heating	7,217		Calculated estimate	
Estimated no of homes using fuels other than gas for heating	1,478		Calculated estimate	
Estimated number of homes using Economy 7 heating	522		For homes which don't use mains gas for heating assumed that 35.3% use Economy 7, 52.9% using oil, and 11.8% using solid fuel	Heat in homes: customer choice on fuel and technologies. Richard Hoggett University of Exeter.
Estimated number of homes using oil heating	782			
Estimated number of homes using solid fuel heating	174			http://geography.exeter.ac.uk/staff_profile_images/Hoggett2011_Heat_in_Homes.pdf derived from NS/DECC 2010.

Baseline car use

- % of diesel and petrol vehicles
- Energy consumption
- CO₂ emissions



Renewable power

- Contribution of roof top PV
- Ground mounted PV
- On-shore wind



Renewable heat

- What could we do with heat pumps
- And biomass?



Charts and graphs

Estimated annual energy use before and after energy efficiency

Heat and power - annual demand (kWh/yr)



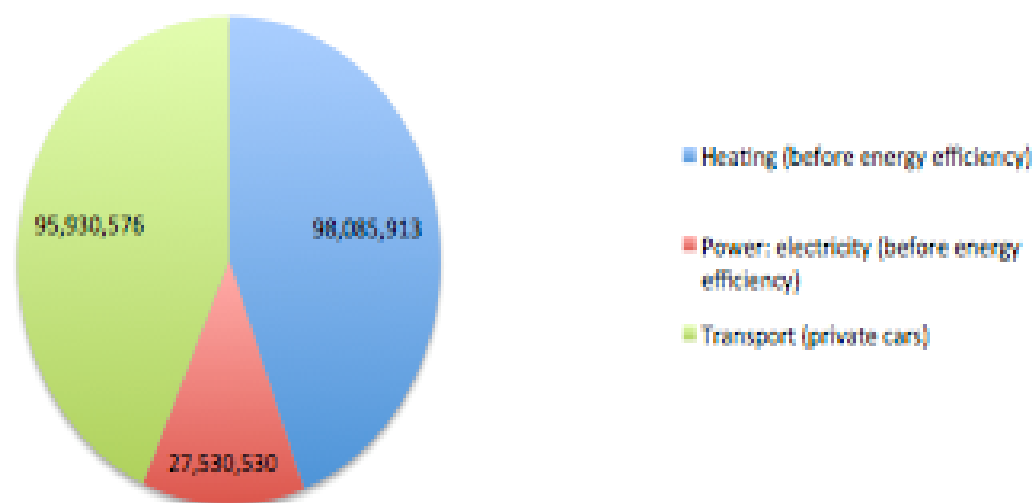
How is annual energy demand for your village or town split between heat, power and transport?

Before energy efficiency measures and assuming

0.5

% of cars are 100% electric

Estimated annual energy use (kWh/yr)

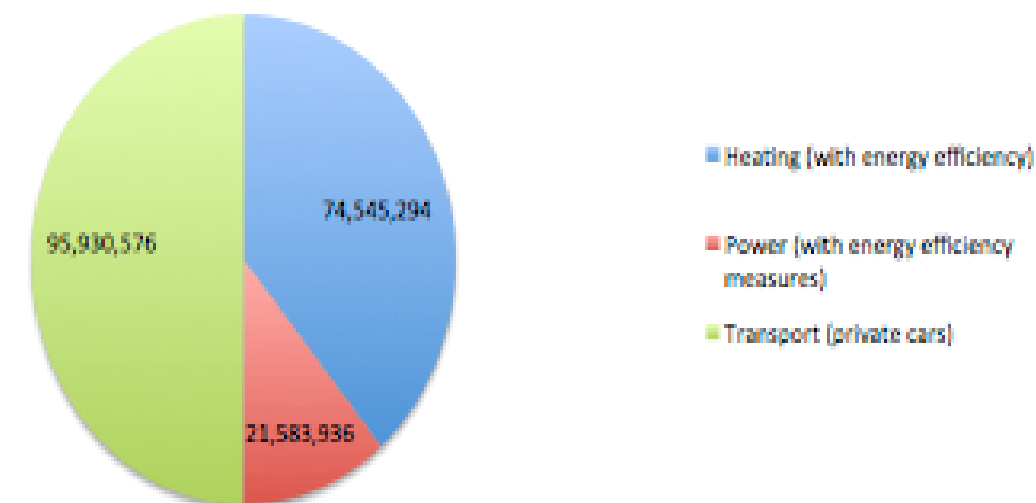


After energy efficiency measures and assuming

0.5

% of cars are 100% electric

Estimated annual energy use (kWh/yr)



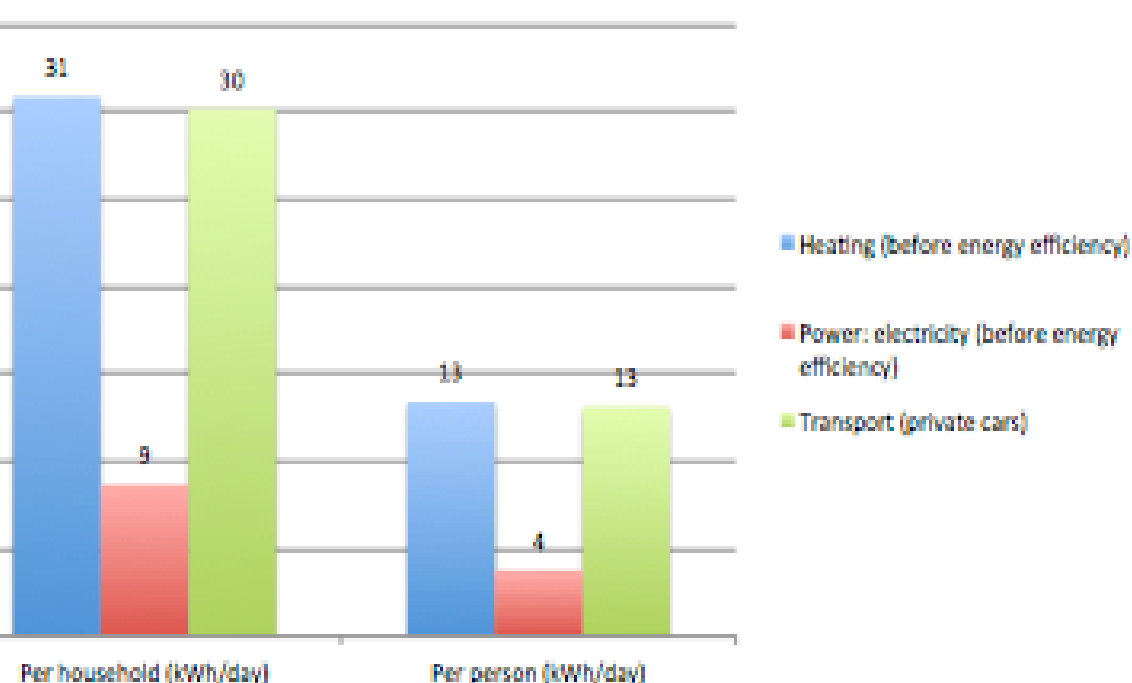
Daily energy demand per household and per person before and after energy efficiency

Before energy efficiency measures and assuming

0.5

% of cars are 100% electric

And energy and car use are averaged out across the year and all households and individuals

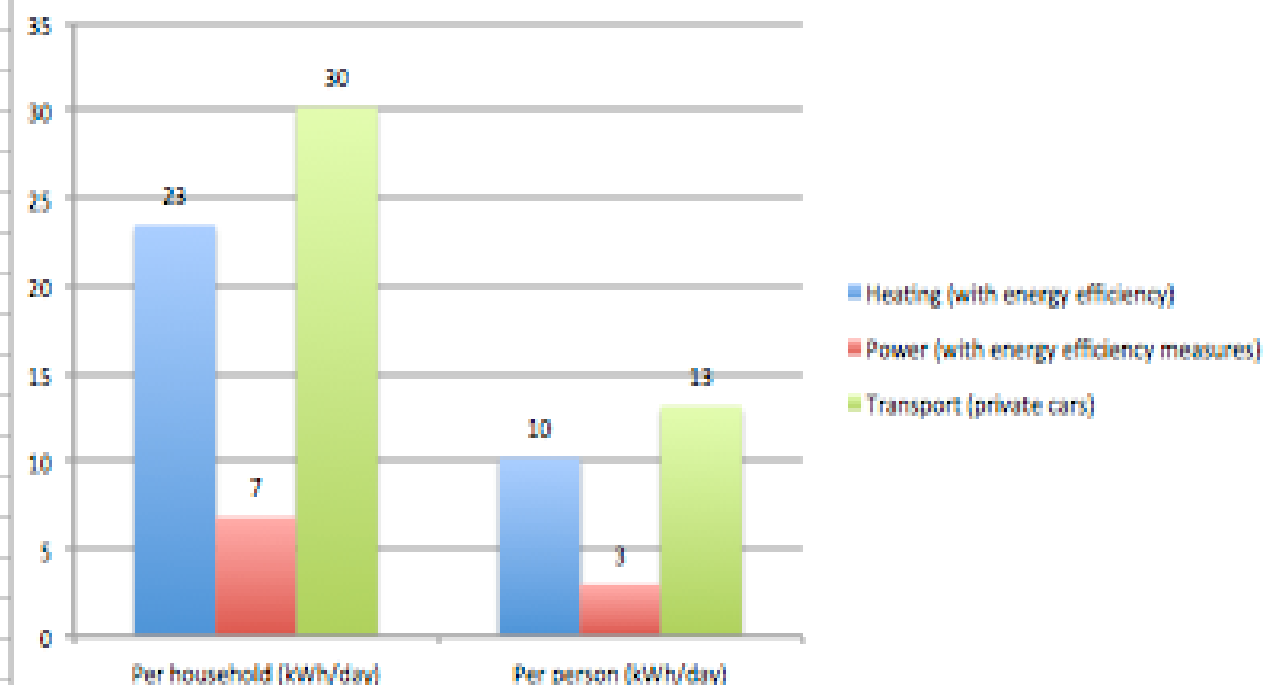


After energy efficiency measures and assuming

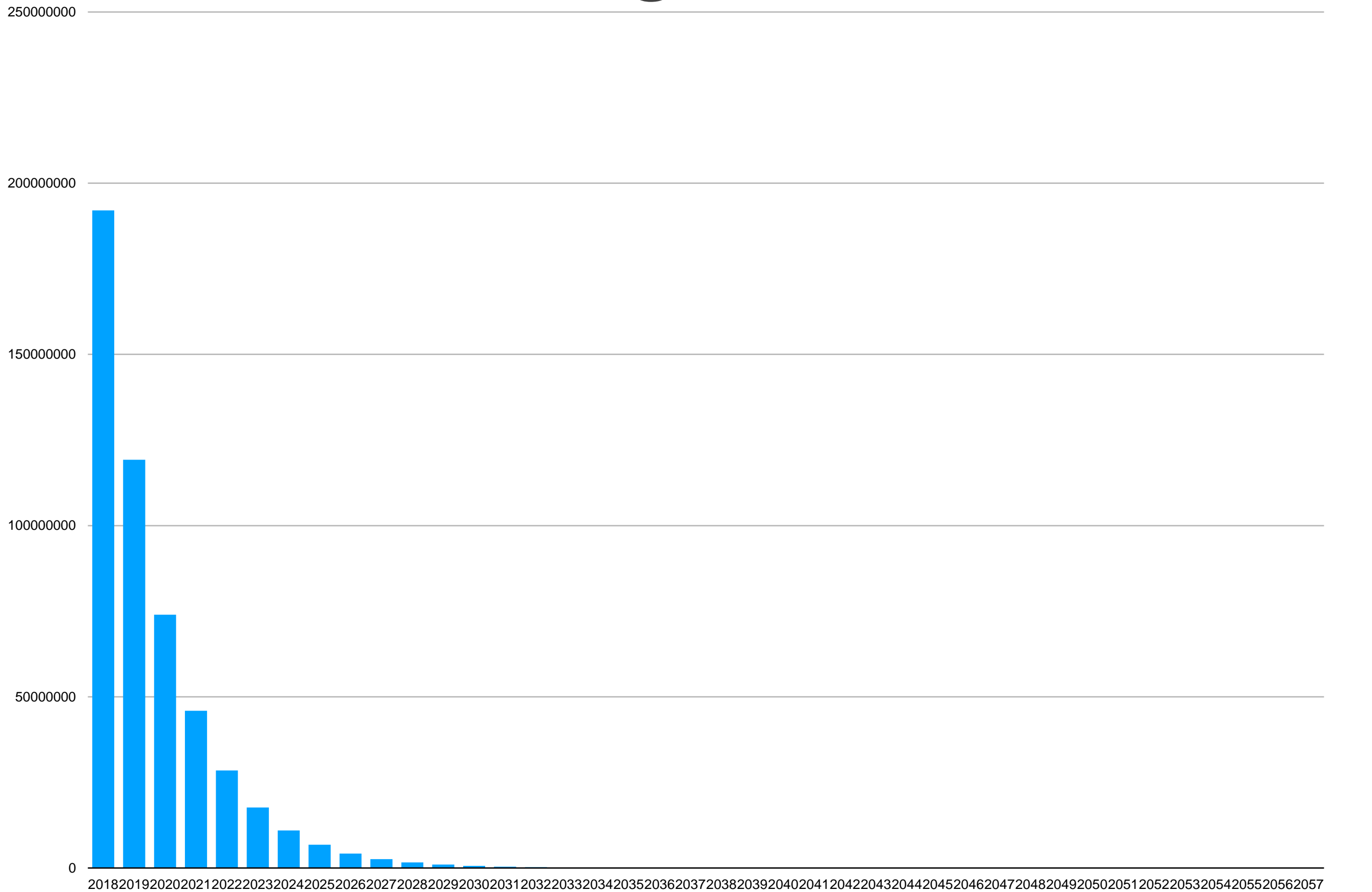
0.5

% of cars are 100% electric

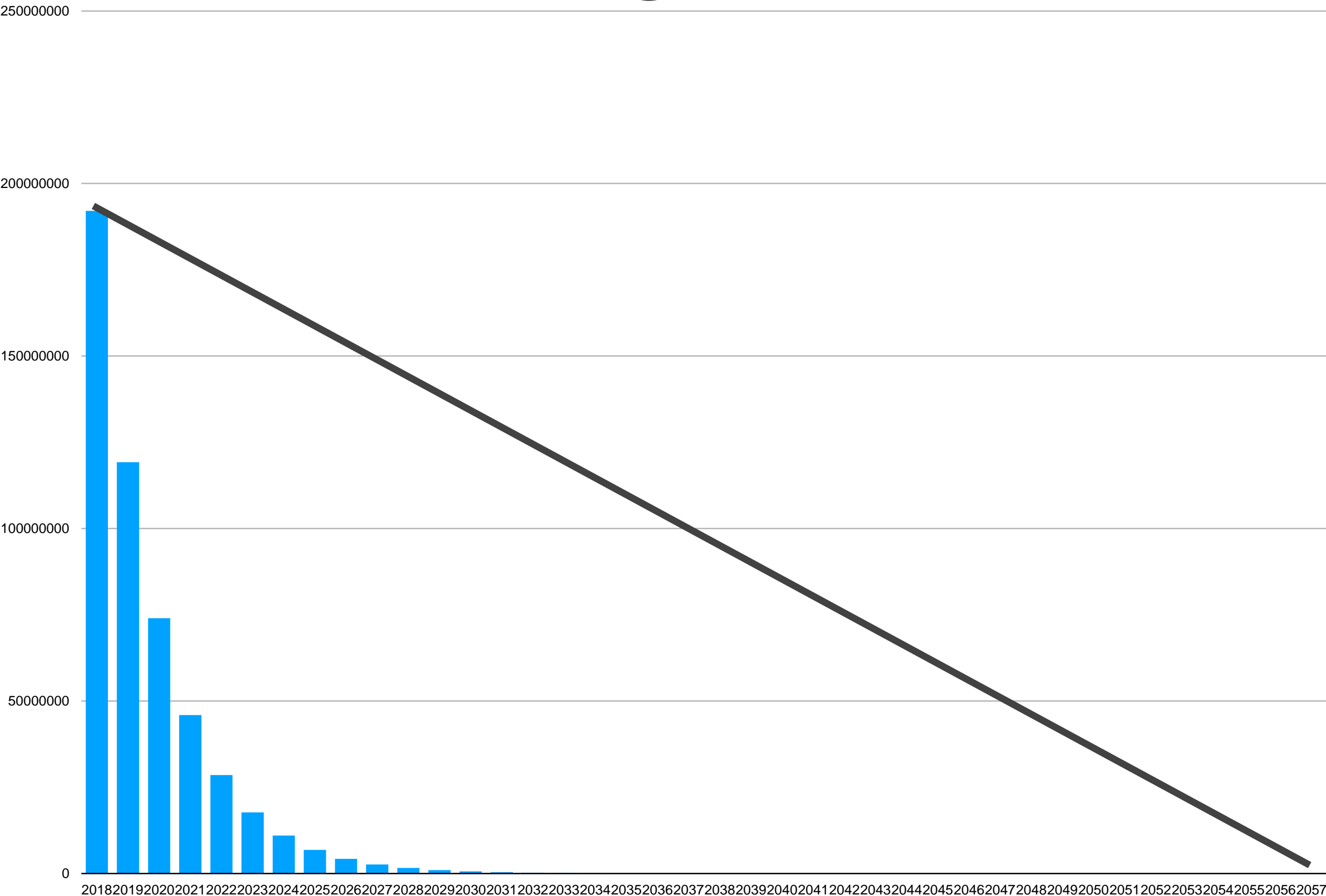
And energy and car use are averaged out across the year and all households and individuals



Getting to zero



Getting to zero



Limitations

- Based on national averages
- So won't accurately reflect local or personal consumption
- To initiate discussion, debate and further work.....
- Not to formulate local policies



Thank you

Mark Letcher - Climate Works Ltd