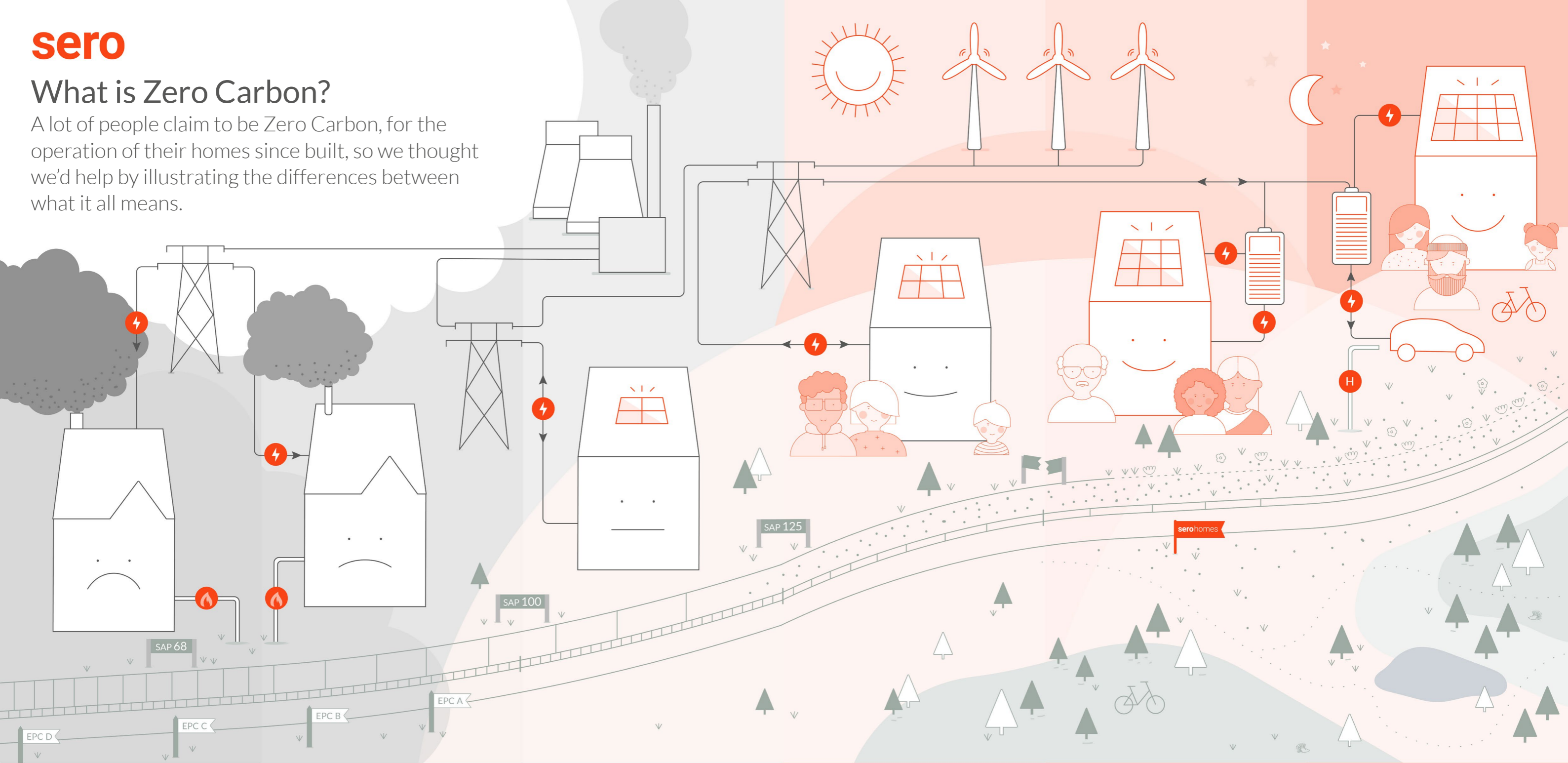


## What is Zero Carbon?

A lot of people claim to be Zero Carbon, for the operation of their homes since built, so we thought we'd help by illustrating the differences between what it all means.



8,159 kgCO<sub>2e</sub>

2,704 kgCO<sub>2e</sub>

1,165 kgCO<sub>2e</sub>

143 kgCO<sub>2e</sub>

0 kgCO<sub>2e</sub>

... kgCO<sub>2e</sub>

### Average Home

What's average? Well, every home is different, but for this we've used a typical 100m<sup>2</sup> 1930's UK semi-detached home with a family of four living in it, using an efficient gas condensing boiler for heating and hot water. We've used reliably published data for occupancy energy demand and National Grid electricity carbon intensity data for 2019 (thanks [www.CarbonIntensity.org.uk](http://www.CarbonIntensity.org.uk)!)

### New Build Home

We've transported our family of four into a new home that's the same size, built to 2014 Building Regulations with an efficient gas boiler for heating and hot water. We've assumed the house is actually built as it was designed, so haven't made an allowance for any issues with construction faults or failures (we know, that might be a bit optimistic of us!).

### Zero Regulated Energy

This is basically everything without a plug socket. So it includes extract fans, fixed lights, heating and hot water, but not washing machines, floor lamps and so on. The oven is in, the fridge & freezer isn't! Zero means that over a year, the home generates as much energy as it needs to power the regulated equipment. To do this, our family are now in a matching size home that has a 14 panel photovoltaic array on the roof, facing South.

### Zero Energy

This is the first level to allow our family's to plug in their stuff = home + humans! All the energy used in the home over the course of a year, whether from kettles, games consoles, heating, lights or mobile phone charging, is balanced by the same amount of power being generated. Our much-relocated family have now moved into an efficient home with a pretty big PV array on the roof, generating just over 9MWh of electricity a year!

### Zero Carbon

Our family can finally settle down! Their zero carbon home goes beyond the zero energy home by using energy storage, so the electricity they generate can be stored for their use, or exported to the National Grid when it can help avoid the most carbon emissions. This supports the National Grid to decarbonise their large scale generation, and with intelligent energy services from Sero, our family also get cheaper electricity bills too.

### Beyond Zero Carbon

At Sero, we're aiming to go beyond zero carbon homes with humans in them, we also want to cover our family for their transport. With electrification of cars and bikes, we're working to include the energy demands of these into our intelligent systems. So our families can live, work and play, knowing they're effortlessly zero carbon and saving money. Happy Days!