



Electrification is an Imperative, but what else in the Meantime!

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LCV2019 Event Sponsor:

GEOTAB®
management by measurement

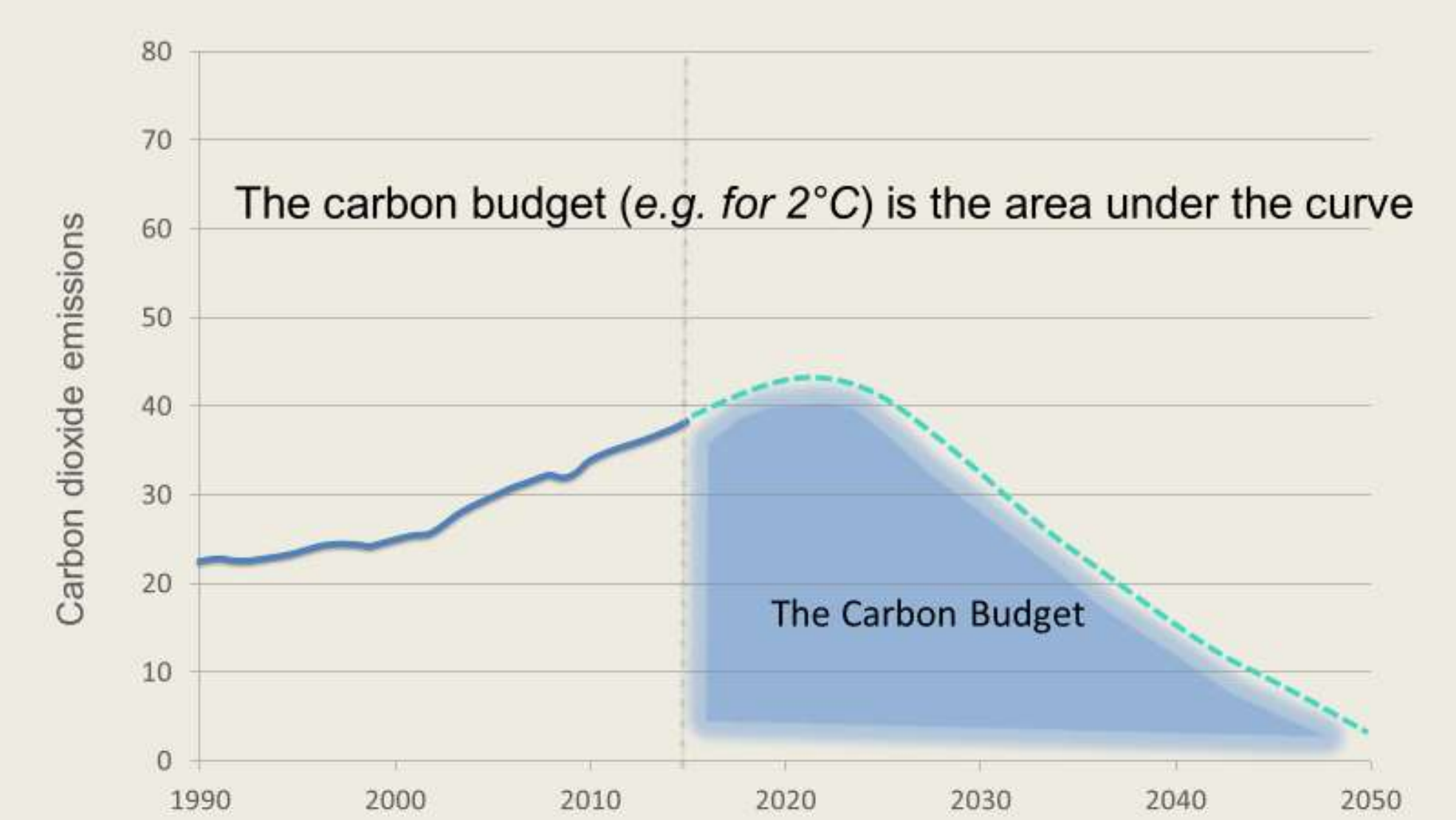
Electricity of course, but what else?

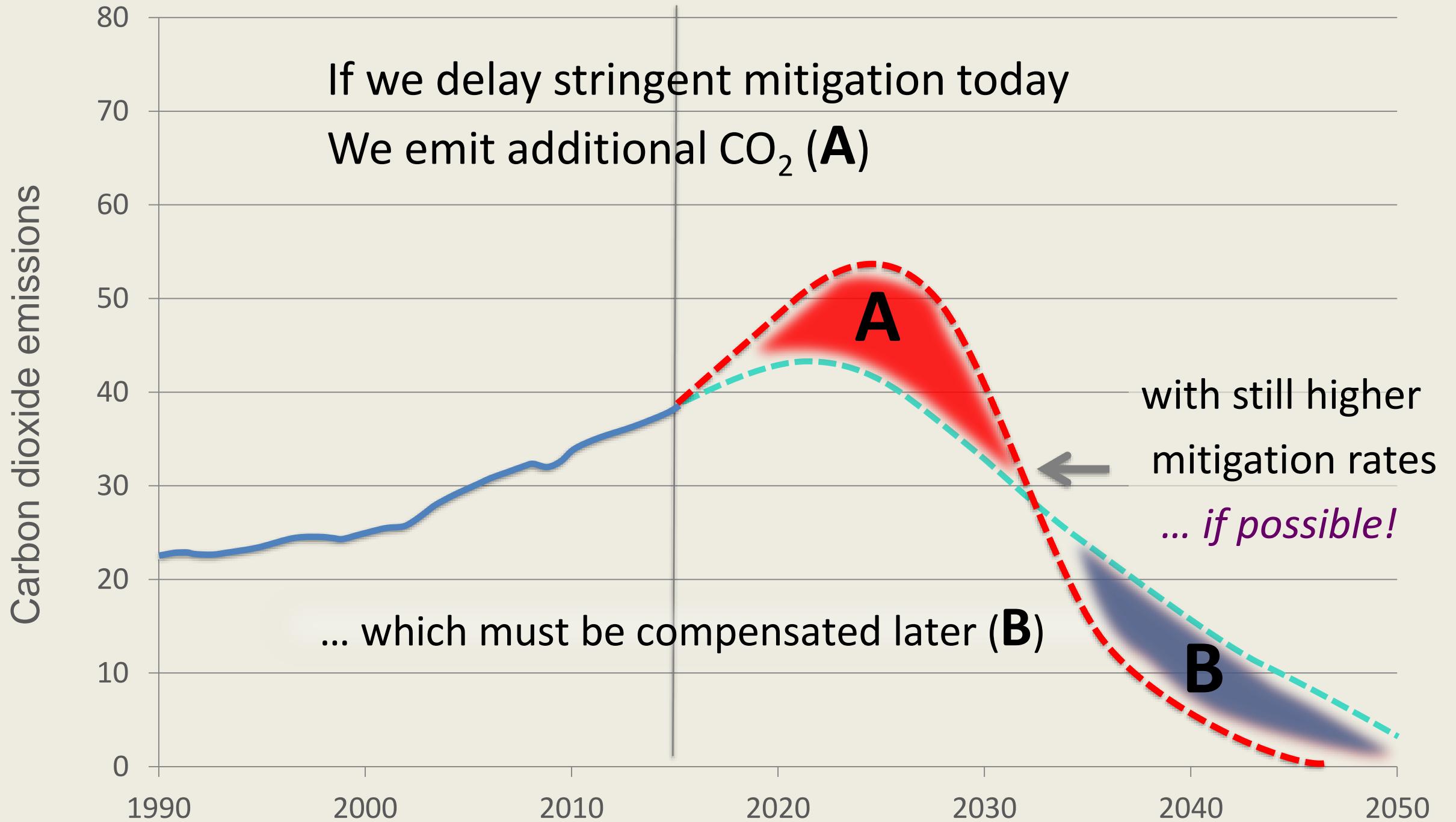
Low carbon energy for transport
LCV 4 Sept 19



Andy Eastlake
Managing Director

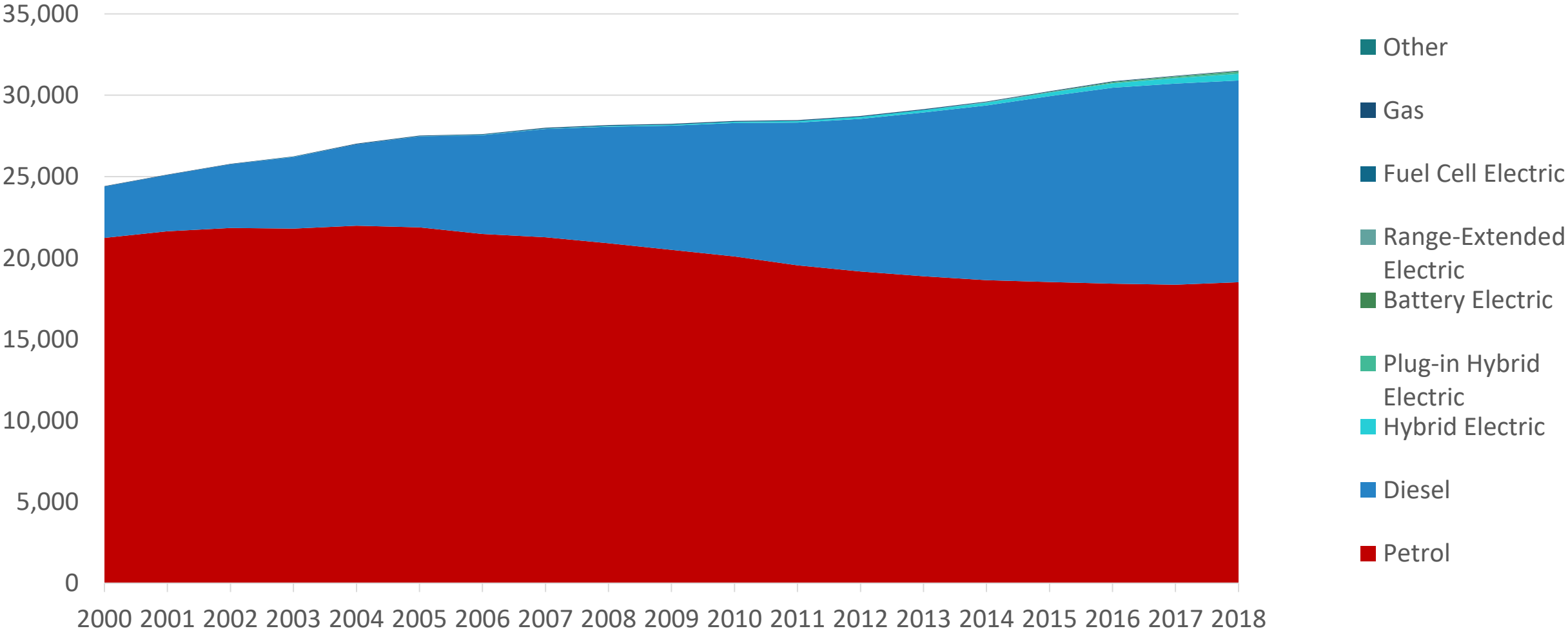
Kevin Andersen – LowCVP conf 2019





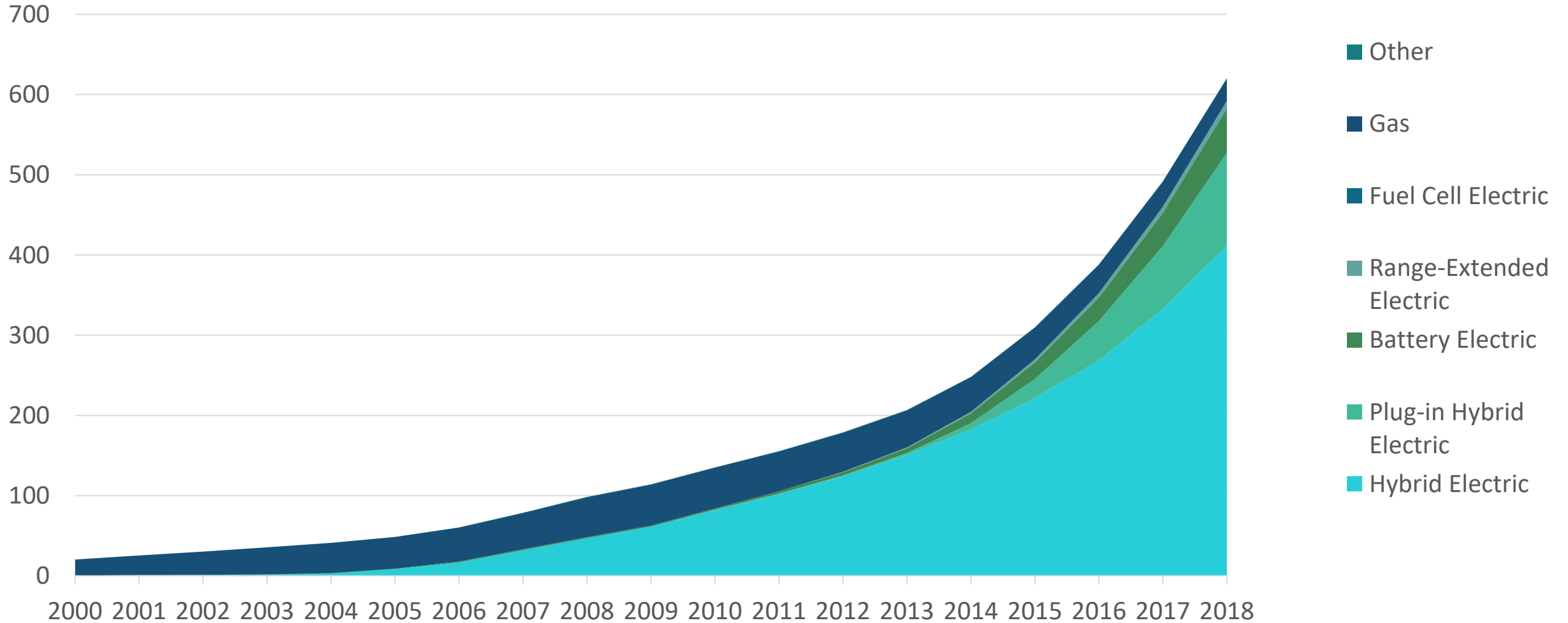
Road transport is currently powered by liquid fuels

Licensed cars by year (thousands) - Great Britain (DfT VEH0203)



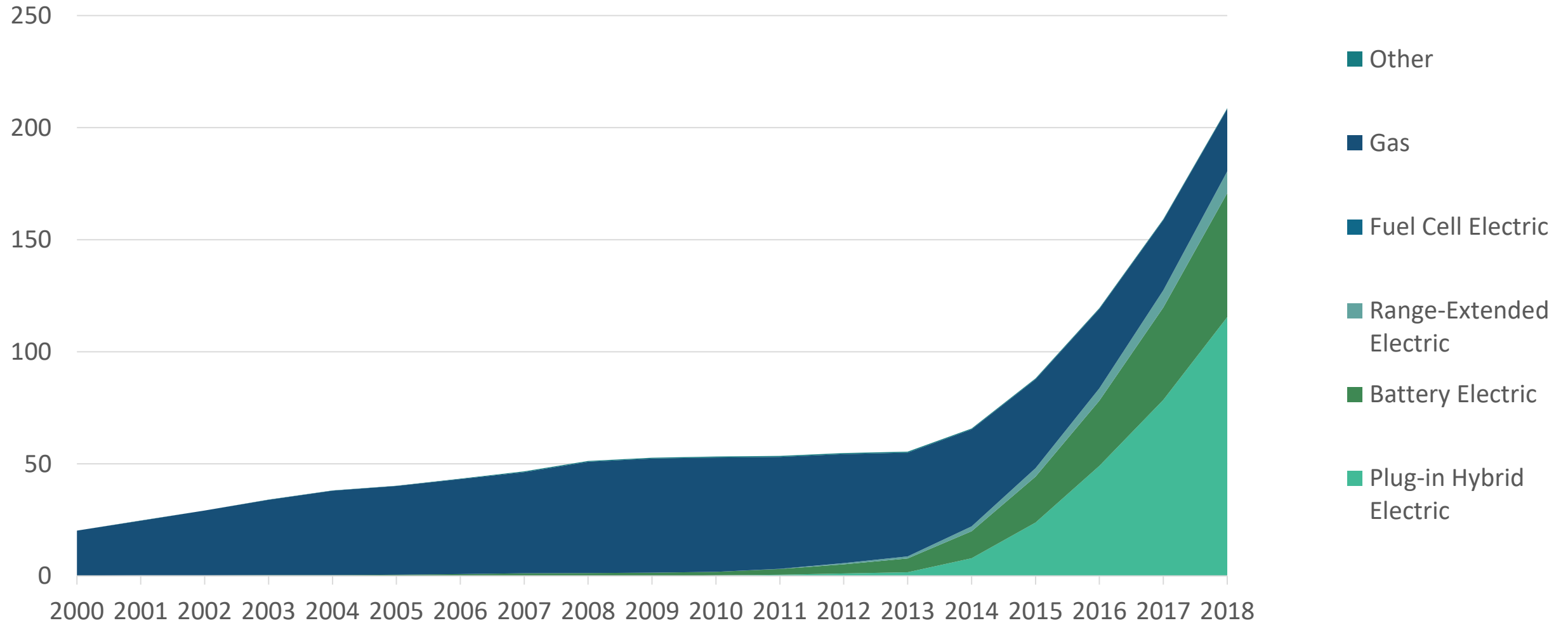
AFV is mostly powered by liquid fuels

Licensed cars by year (thousands) - Great Britain (DfT VEH0203)



Electricity is starting to be used (with liquid fuel), but Electricity <0.1% of road transport energy (DUKES 2018)

Licensed cars by year (thousands) - Great Britain (DfT VEH0203)



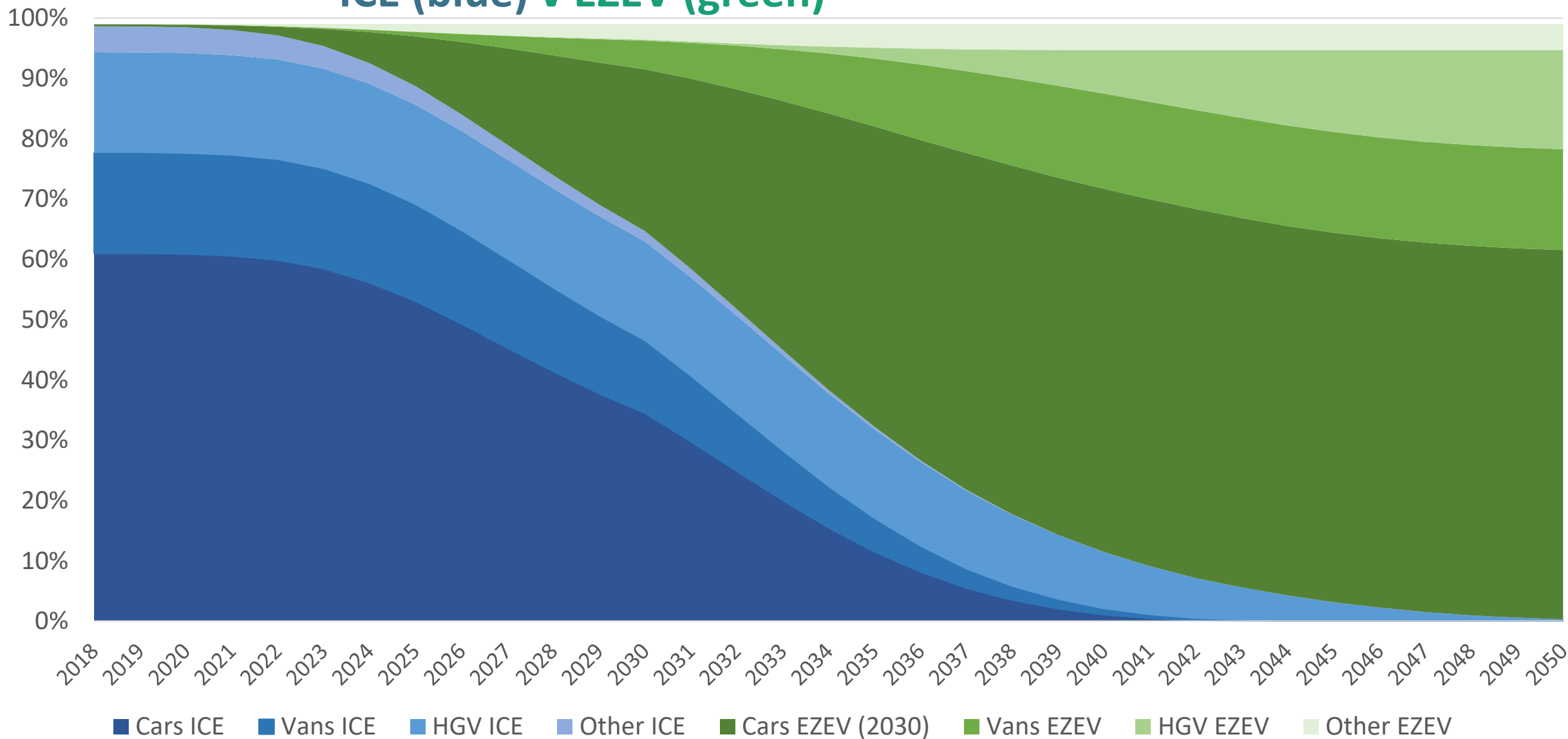
2019 - Net Zero for Road transport

- **Electric vehicles.** By 2035 at the latest all new cars and vans should be electric (or use a low-carbon alternative such as hydrogen). **If possible, an earlier switchover (e.g. 2030) would be desirable**, reducing costs for motorists and improving air quality. This could help position the UK to take advantage of shifts in global markets. The Government must continue to support strengthening of the charging infrastructure, including for drivers without access to off-street parking.
- **HGVs.** The Government will need to make a decision on the required infrastructure for **zero emission HGVs, with international coordination**, in the mid-2020s ready for deployment in the late 2020s and throughout the 2030s. To help prepare for that, trials of zero emission HGVs and associated refuelling infrastructure are now needed. Vehicle and fuel taxation from the 2020s onwards should be designed to incentivise commercial operators to purchase and operate zero-emission HGVs.
- **Almost all HGVs and heating of buildings must be low-carbon by 2050.** These were already desirable goals for an 80% target, but will be necessary for a net-zero target.



Estimated Road transport GHG contribution in use to 2050 -

ICE (blue) v EZEV (green)



Many renewable options (incl Electricity and H₂)

Statistical Release

8 August 2019



Department
for Transport

Renewable Fuel Statistics 2019 First Provisional Report

Volume, million litres eq.²

Fuel Type	Supply periods ³					Total	Percentage of total fuel supply
	Jan	Jan - Feb	Feb - Mar	Mar - Apr	Apr - May		
Fossil fuels							
Diesel	960	2,347	2,232	2,506	2,178	10,224	55%
Low sulphur gas oil	153	416	402	441	364	1,775	10%
MTBE (fossil portion)	0	0	0	0	0	0	0%
Petrol	588	1,287	1,225	1,314	1,333	5,746	31%
Total	1,702	4,050	3,859	4,260	3,875	17,746	96%
Renewable fuels							
Biopetrol	1	2	2	-	0	6	0%
Biodiesel FAME	37	102	86	117	126	467	3%
Bioethanol	26	62	56	60	63	268	1%
Biomethane ⁴	-	-	-	3	-	3	0%
Biomethanol	1	1	5	7	1	15	0%
Biopropane	-	-	-	20	-	20	0%
Diesel (origin bio)	0	1	1	-	0	2	0%
HVO	0	1	0	0	-	1	0%
Methanol	0	-	-	-	-	0	0%
Off road biodiesel	1	5	4	5	6	21	0%
Total	66	175	154	212	197	804	4%
Total	1,768	4,224	4,013	4,473	4,072	18,550	100%

In 2019:

- **804 million litres equivalent (eq.) of renewable fuel** has been supplied, which constitutes 4% of total road and non-road mobile machinery fuel for the year.
- **256 million litres eq. (32%) has been verified** so far under the Renewable Transport Fuel Obligation (see background information).
- Of this 256 million litres eq., an aggregate **greenhouse gas (GHG) saving of 81%** was achieved when compared to fossil fuel use.
- **19%** of all verified renewable fuel supplied to the UK in this period was produced from **UK origin feedstocks**.

Figure 3: Highlights - 2019

Renewable fuels made up **4%** of total road and non-road mobile machinery fuel so far this year.



Of the 804 million litres eq. of renewable fuels, 256 million litres eq. has been **verified**.



Certified renewable fuels achieved an average **greenhouse gas saving** of **81%**.

81%

Biodiesel made up **56%** of verified renewable fuel.



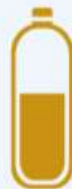
Bioethanol made up **37%** of verified renewable fuel.



Waste feedstocks made up **66%** of verified renewable fuel.



80% of biodiesel was produced from **used cooking oil**.



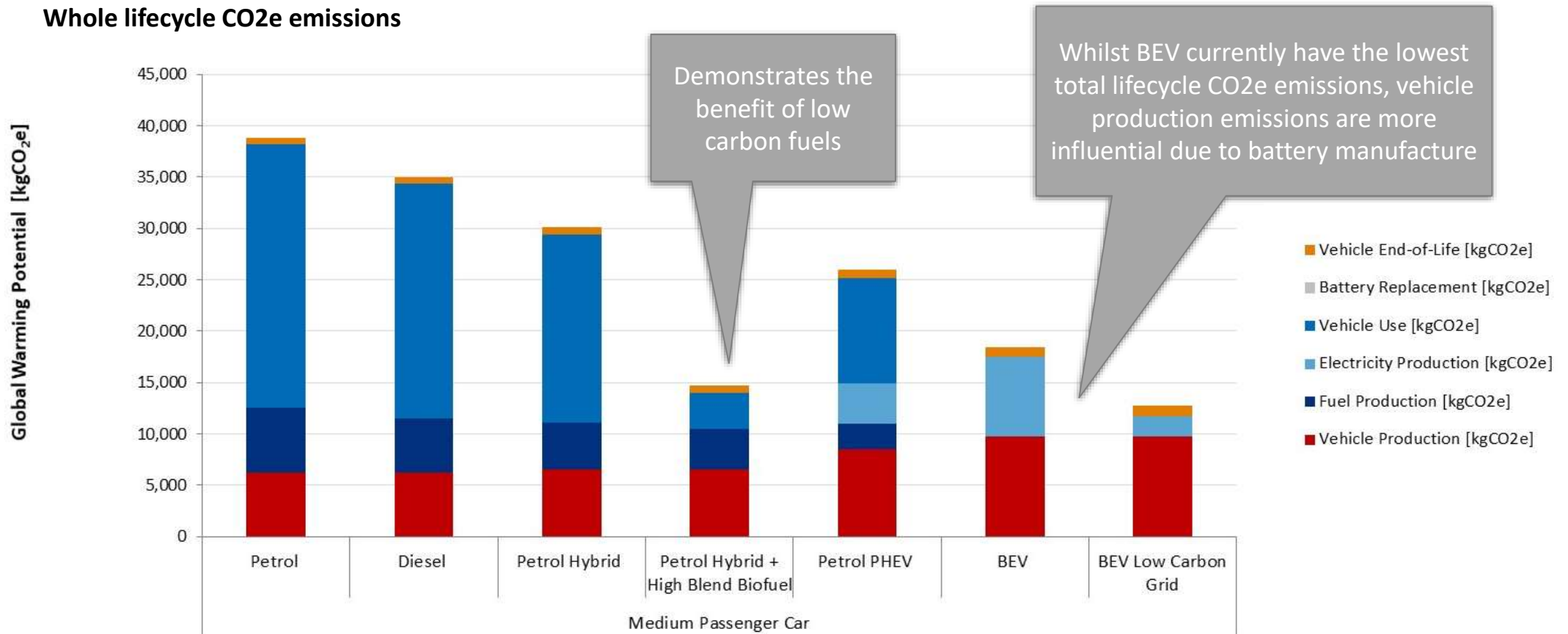
47% of bioethanol was produced from **sugar cane**.



United Kingdom feedstocks made up **19%** of verified renewable fuel.



LCA demonstrates GHG impacts beyond the tailpipe – critical for long term transport decarbonisation



Assumptions: UK vehicle production and use phase, vehicle lifetime 175,000km, diesel B3, ethanol E5 (RTFO period 2018), grid average electricity (BEIS period 2017), high blend biofuel E85 (RTFO period 2018), low carbon grid (CCC 2030 carbon intensity)

Source: LowCVP vehicle lifecycle CO₂e tool

Right fuel for the job – or the best use of electrons



Diesel

7.2 l/100km

7.8 l/100km

Long haul driving

Congested city centre



Electric

31.9 kWhr/100km

18.0 kWhr/100km

Each kWhr of electricity can displace double the amount of diesel when used in congested city centre

Source LowCVP/Innovate commercial vehicle testing

Renewable fuel - the big opportunity now

Fuels Working Group

Review UK Well-to-Tank GHG emission conversion factors including update recommendations

Carbon & sustainability criteria study for other bioenergy sectors

E10 introduction toolkit and campaign



Future of thermal powertrains and low carbon fuels - strengthening R&D collaboration

Stimulating the take-up of high blend biofuels

New Fuel Labelling Launch Campaign

