

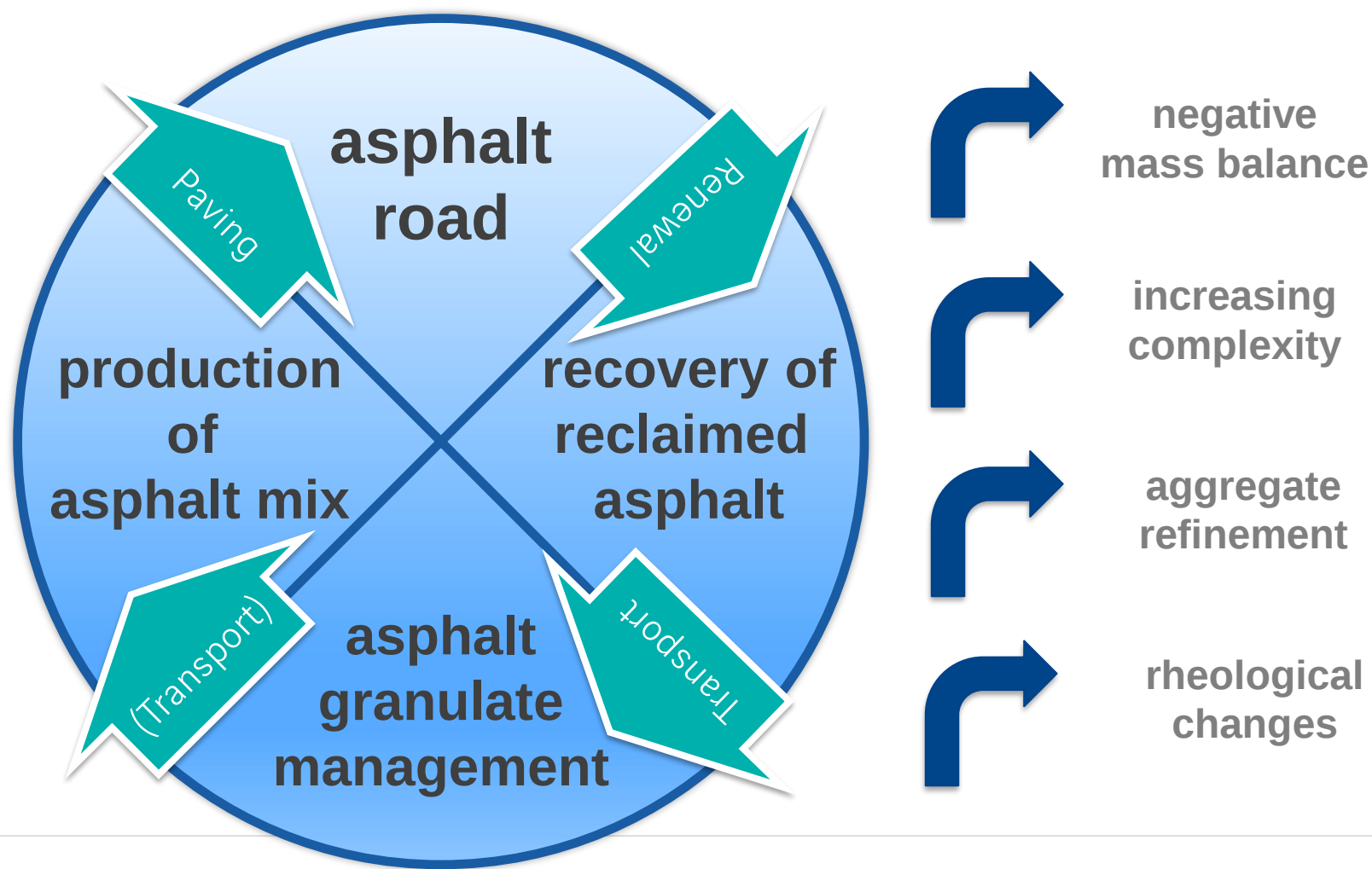
Assessment of environmental impacts of hot mix recycling

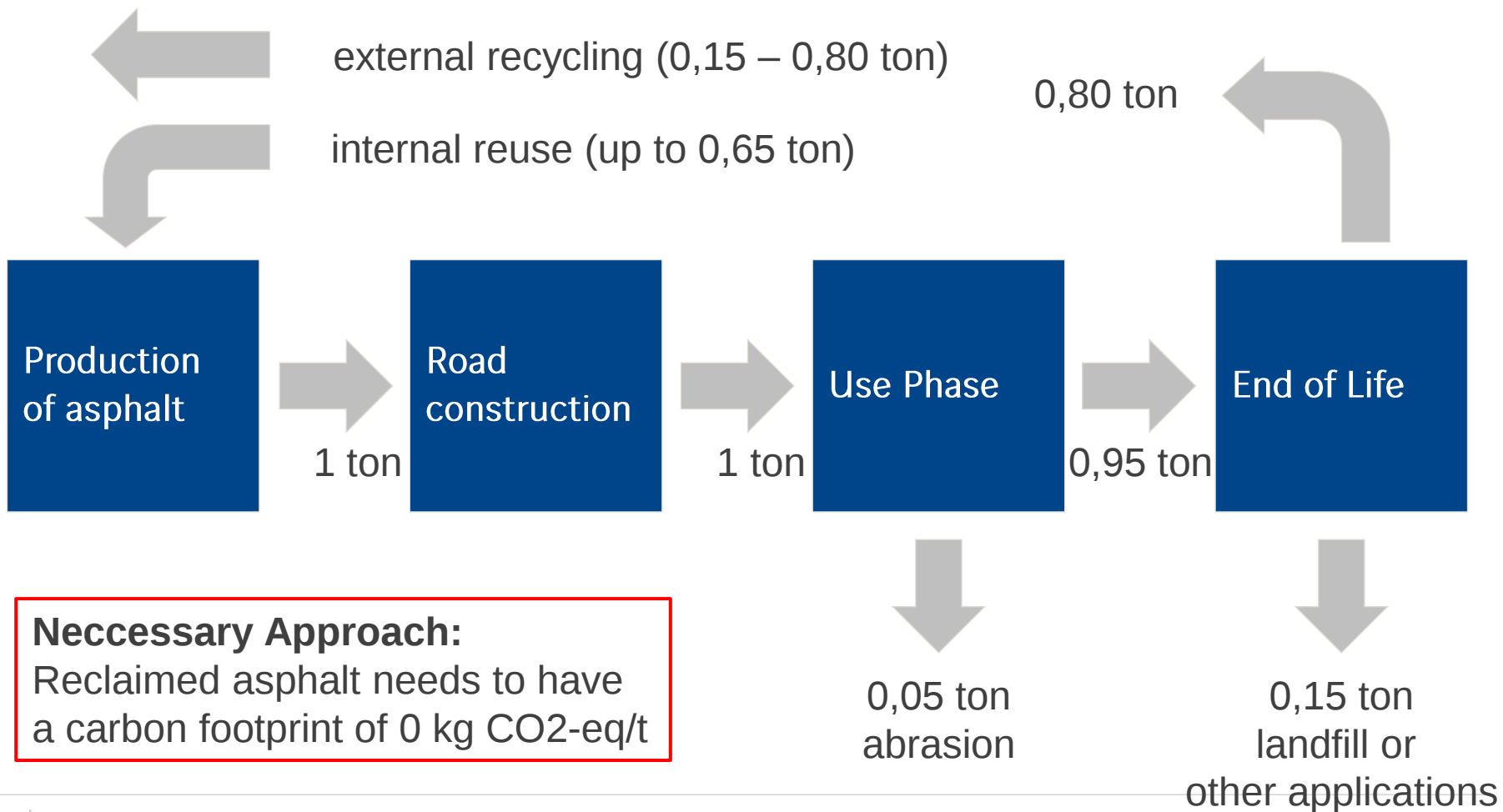
Knut Johannsen

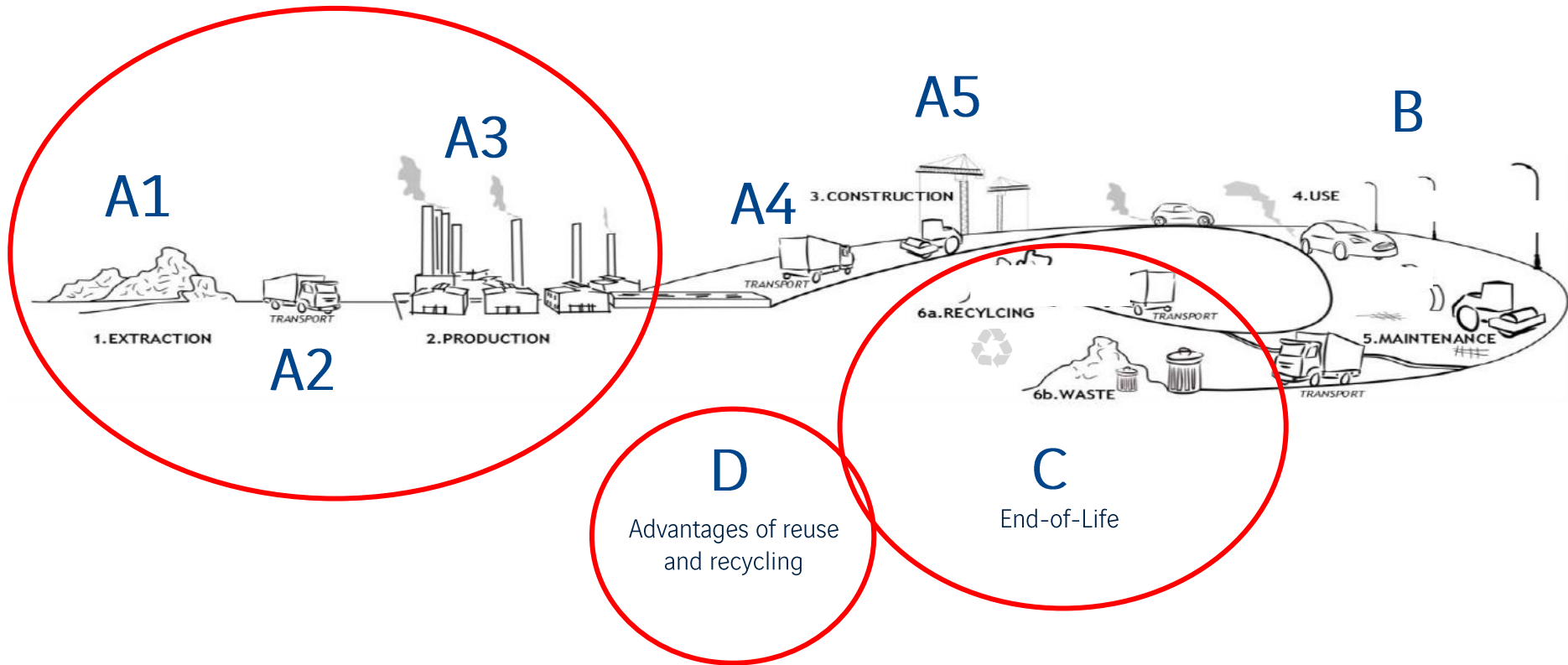
Based on:

Shokri, Traverso, Carreño, Johannsen: Assessment of the environmental impact of fuel type and asphalt recycling during asphalt production. 8th E&E Congress, 2024



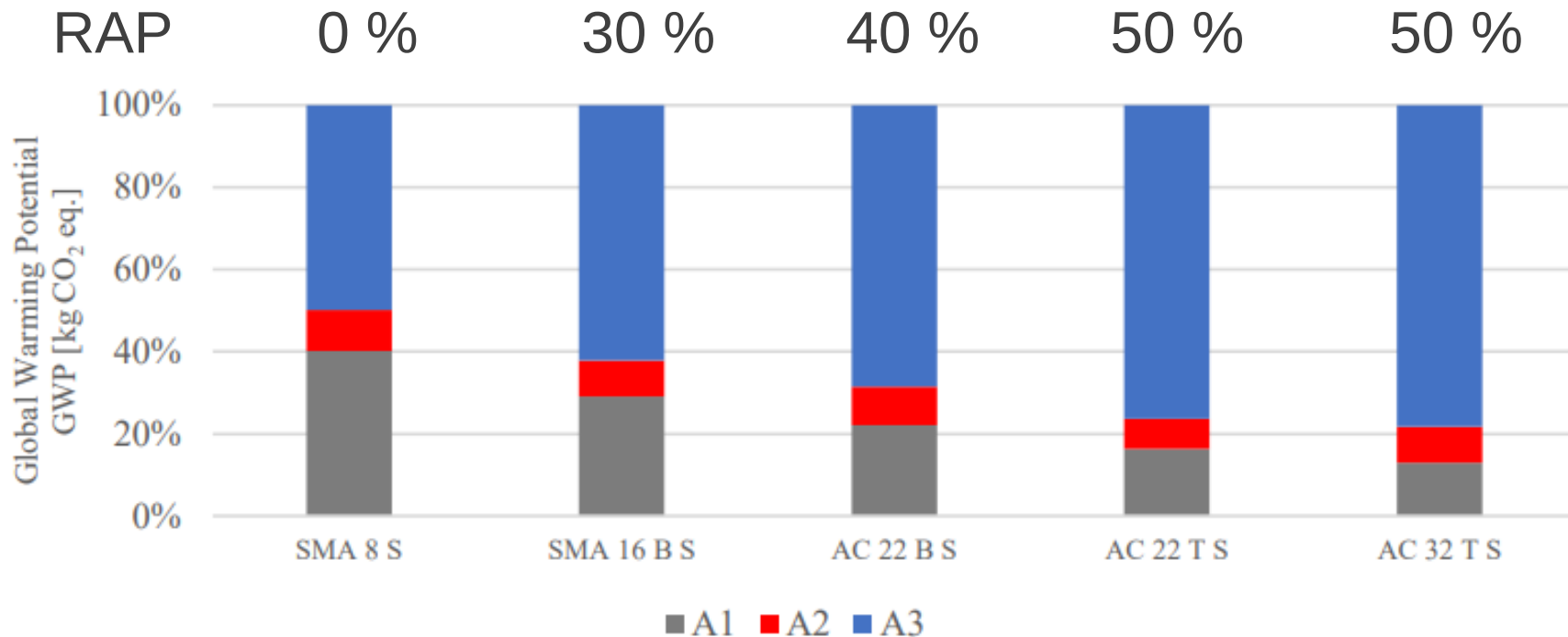


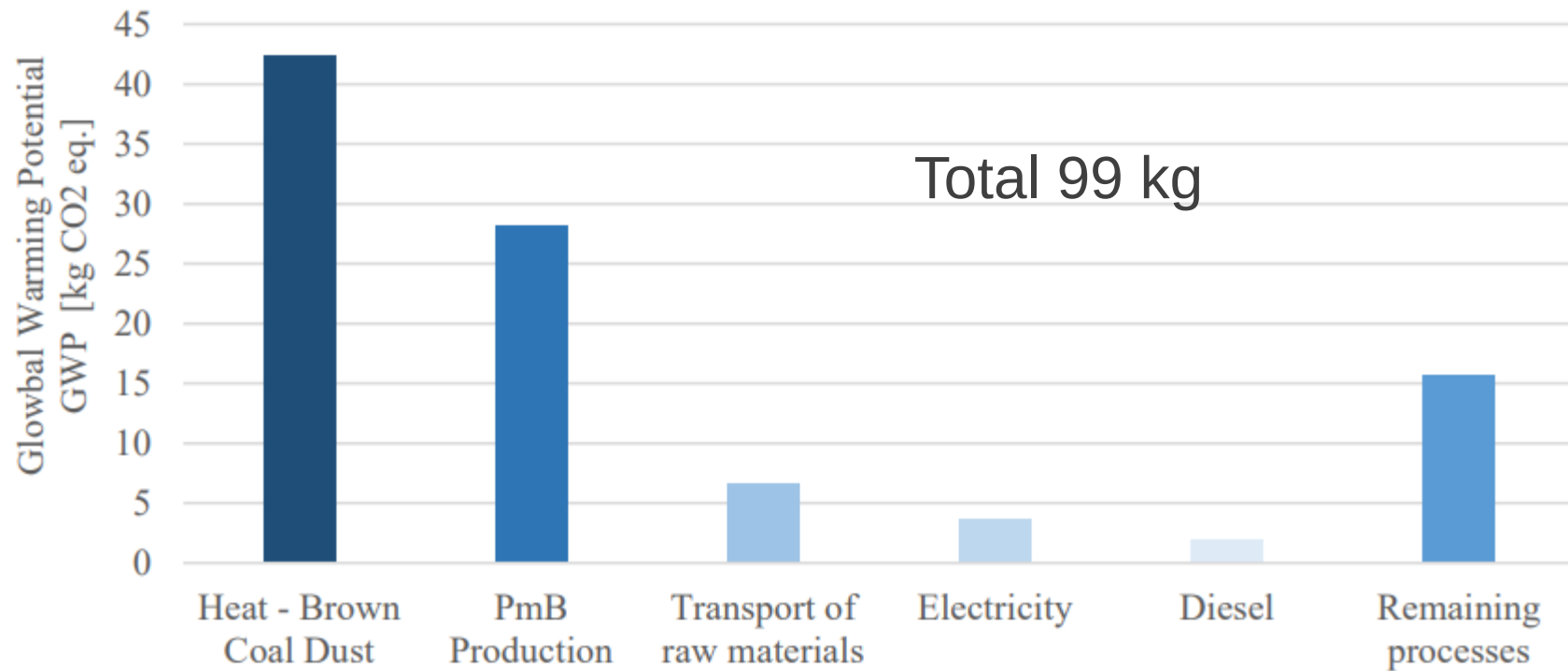




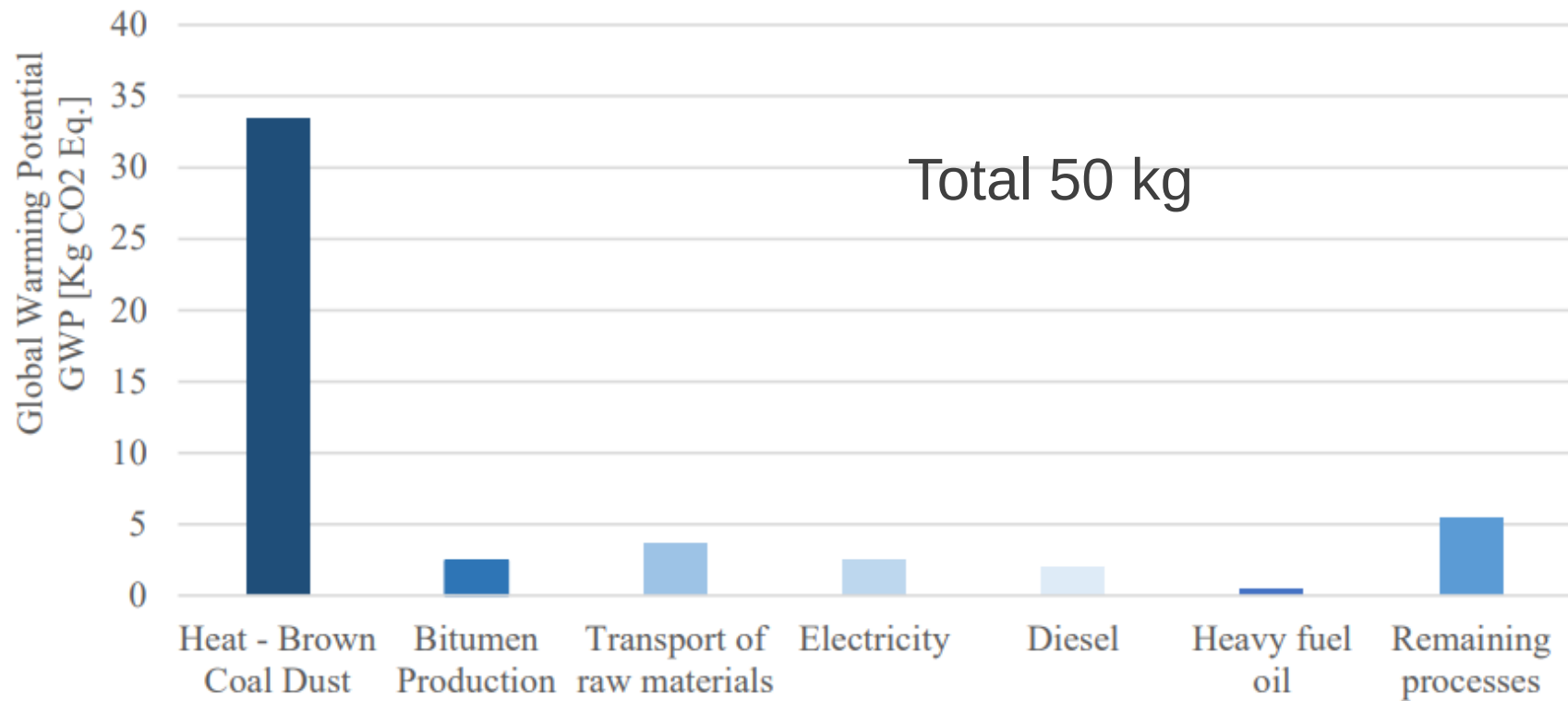
Global Warming Potential - GWP in kg CO ₂ -Eq/t				
Mixture	A1	A2	A3	A1 - A3
SMA 8 S	39,70	9,83	49,22	98,75
SMA 16 B S	21,69	6,59	46,30	74,59
AC 22 B S	13,86	5,80	42,87	62,53
AC 22 T S	8,47	3,85	39,64	51,96
AC 32 T S	6,48	4,36	39,12	49,95

This is how we actually do it.

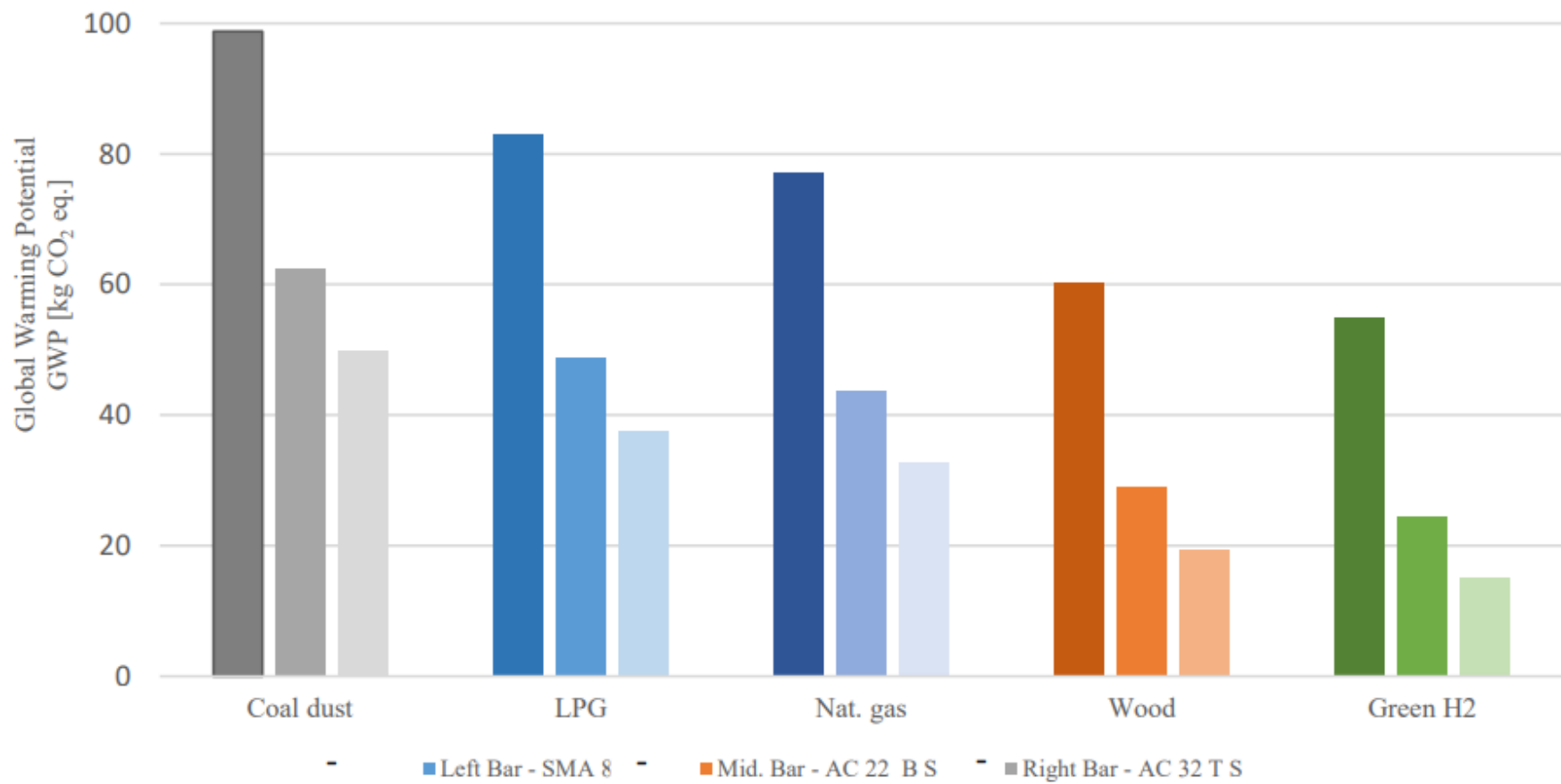




SMA 8 S with 0 % RAP



AC 32 T S with 50 % RAP



non regenerative
ressources

consumed or polluted
water

Mixture	Abiotic Depletion Potential (Fossils) - [MJ]			Water Deprivation Potential [m3 depriv.]		
	A1	A2	A3	A1	A2	A3
SMA 8 S	3.817,76	149,20	432,29	30,81	0,51	0,67
SMA 16 B S	1.885,20	103,07	406,64	16,56	0,36	0,63
AC 22 B S	1.139,67	90,85	376,49	9,95	0,31	0,59
AC 22 T S	969,97	60,25	348,11	3,97	0,21	0,54
AC 32 T S	555,44	68,26	343,53	3,22	0,24	0,54

Conclusions

NEVER STOP CYCLING AND AVOID DEAD ENDS.

WE HAVE TO TAKE CARE THAT RAP HAS NO ACTUAL CARBON FOOTPRINT.

RAP CONTENT AND FUEL TYPE HAVE THE HIGHEST INFLUENCE ON CO₂.

→ The higher the RAP content, the more crucial the correct choice of fuel becomes.

ANYONE WHO FOCUSES ONLY ON CO₂ TODAY, WILL BE WRONG TOMORROW.

→ RAP positively influences most environmental categories.