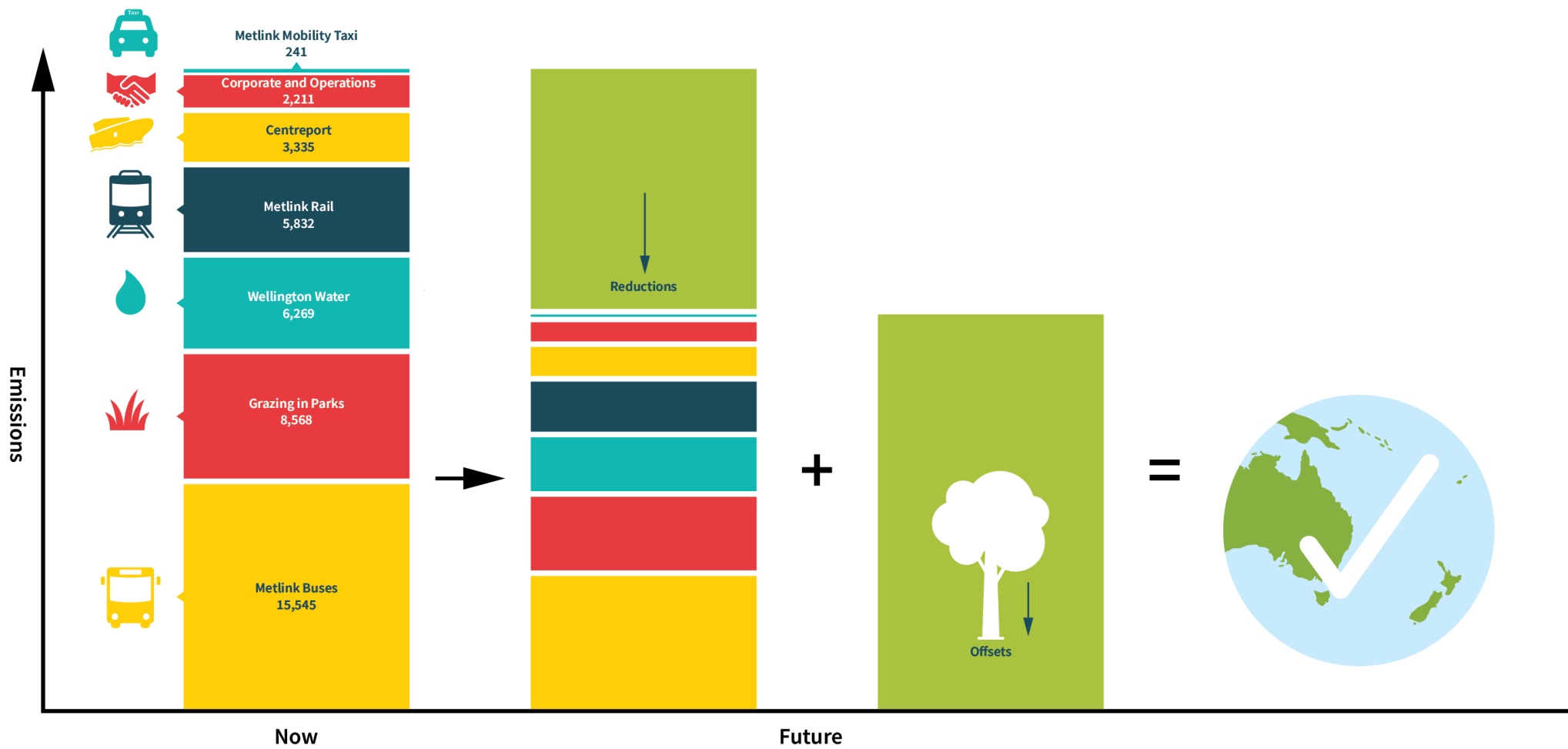


GW Corporate Carbon Pathways for the 2021-31 LTP

Overview

- Background and scenario building
- Officer's preferred option - B2-R1-P1.5
- Option two - B2-R2-P2
- Option three - B1-R1-P1
- Comparison

Greater Wellington – the path to carbon neutrality and beyond



GW's corporate targets

- 40% reduction in net emissions in 2025
- 100% reduction in net emissions in 2030 (carbon neutral or net-zero)
- 'Carbon positive' by 2035 (units being generated by GW exceed gross emissions)
- Set five-yearly carbon budgets



Background

- On 29 October Council agreed that there would be at least two decarbonisations scenarios in the LTP consultation document and one of these would be B2-R2-P2
- Since then the various scenarios have been investigated further and costs refined
- The current scenario included in the draft LTP is B2-R1-P1.5
- Following workshop feedback, offsetting assumed not to begin until 2025 at the earliest

Scenario building

- 100% renewable electricity by 2030 (updated post election)
- All electric light fleet by 2030
- Cuba Street change included
- CentrePort and CCOs removed from footprint and modelling (total 10,370 tonnes CO₂e/year in 2018-19)



Scenario building - Bus

Level/ label	Description	GW share of cost (2021-30)	Total cost (2021-30)
B1	Existing commitment electric buses, plus new EVs at replacement only ('Organic Growth')	\$63M	\$128M
B2	All bus peak vehicle commitment EV from contract renewal, spares are diesel ('Step Change')	\$83M	\$169M

- Costings are based on existing contractual arrangements. 51% NZTA subsidy.
- Costs common to both scenarios excluded.
- B2 achieves a 75% reduction in emissions in 2030 compared to 2019. Scenarios with spare buses as EV achieve an 82% reduction.
- ~21% of the bus fleet are spares (138 of 663 buses in 2030)

Scenario building - Rail

Level/ label	Description	GW share of cost (2021-30)	Total cost (2021-30)
R1	Diesel-electric multiple unit (DEMU) trains on Wairarapa and Manawatu lines from 2025	\$118M	\$240M
R2	Battery-electric multiple unit (BEMU) trains on Wairarapa and Manawatu lines from 2025	\$270M	\$550M

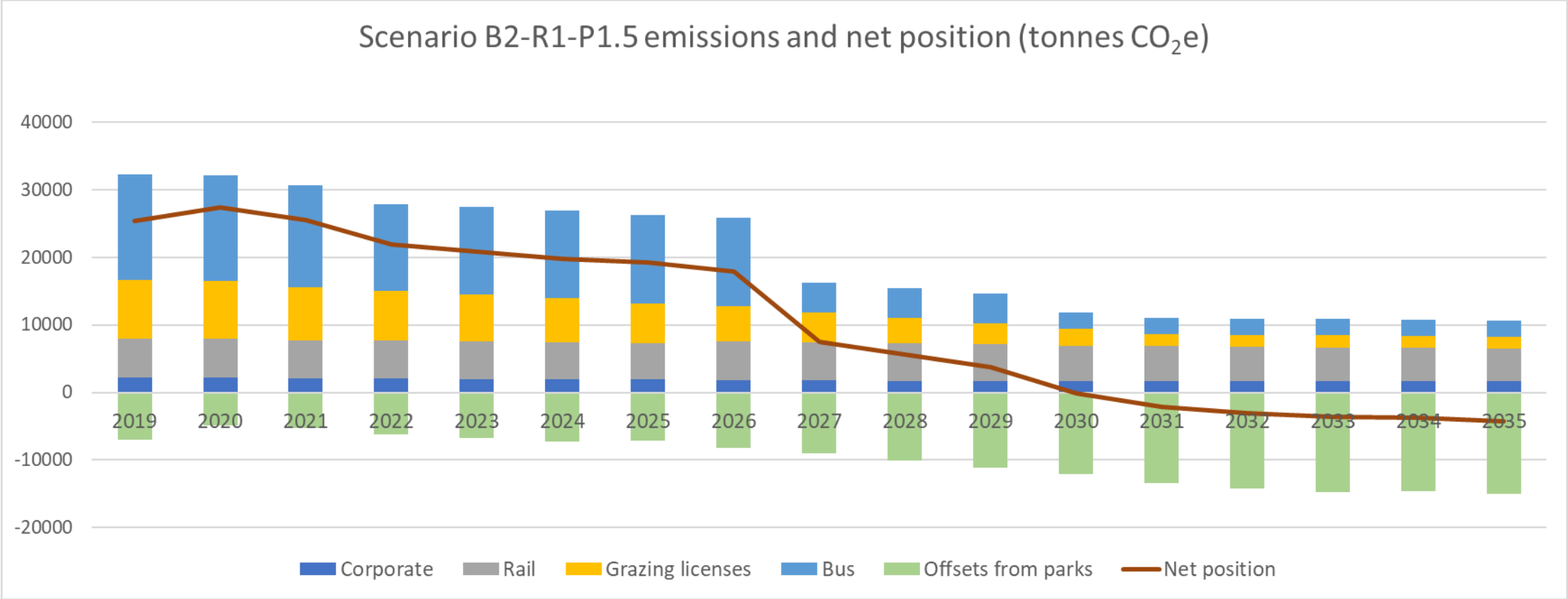
- 51% NZTA subsidy assumed to calculate GW share of cost
- Costs common to both scenarios excluded (e.g. station improvements)
- Note carbon reductions from full electrification of these lines (EMU trains) are the same as R2

Scenario building - Parks

Level/ label	Description	Cost estimate (total to 2035)
P1	1,115Ha grazing phased out over 15 years, planted in new native forest	\$23.5M
P1.5	1,350Ha grazing phased out over 10 years, planted in new native forest	\$26.4M
P2	1,713Ha grazing phased out over 10 years, planted in new native forest	\$36.3M

- Cost estimate excludes value of emissions units earned from new forest
- Excludes any contribution from Low Carbon Acceleration Fund (LCAF)

Officer's preferred scenario - B2-R1-P1.5



- Carbon positive goal achieved

Officer's preferred scenario - B2-R1-P1.5

tCO ₂ e	Budget	Gross emissions	Difference	Sequestration	Shortfall
2021-25	N/A	140103	0	-32612	-32612
2026-30	38877	85070	46192	-50566	-4374
2031-35	0	55230	55230	-72024	-16794
				Total	-53780
				Pre-2021 emission unit reserve	-86,129
				Net emission unit position	-139,909
				Value at \$150/tCO ₂ e	\$ 20,986,313

- No external emissions unit purchase needed to maintain carbon neutral status
- Surplus emissions units available – e.g. for Centreport & CCOs

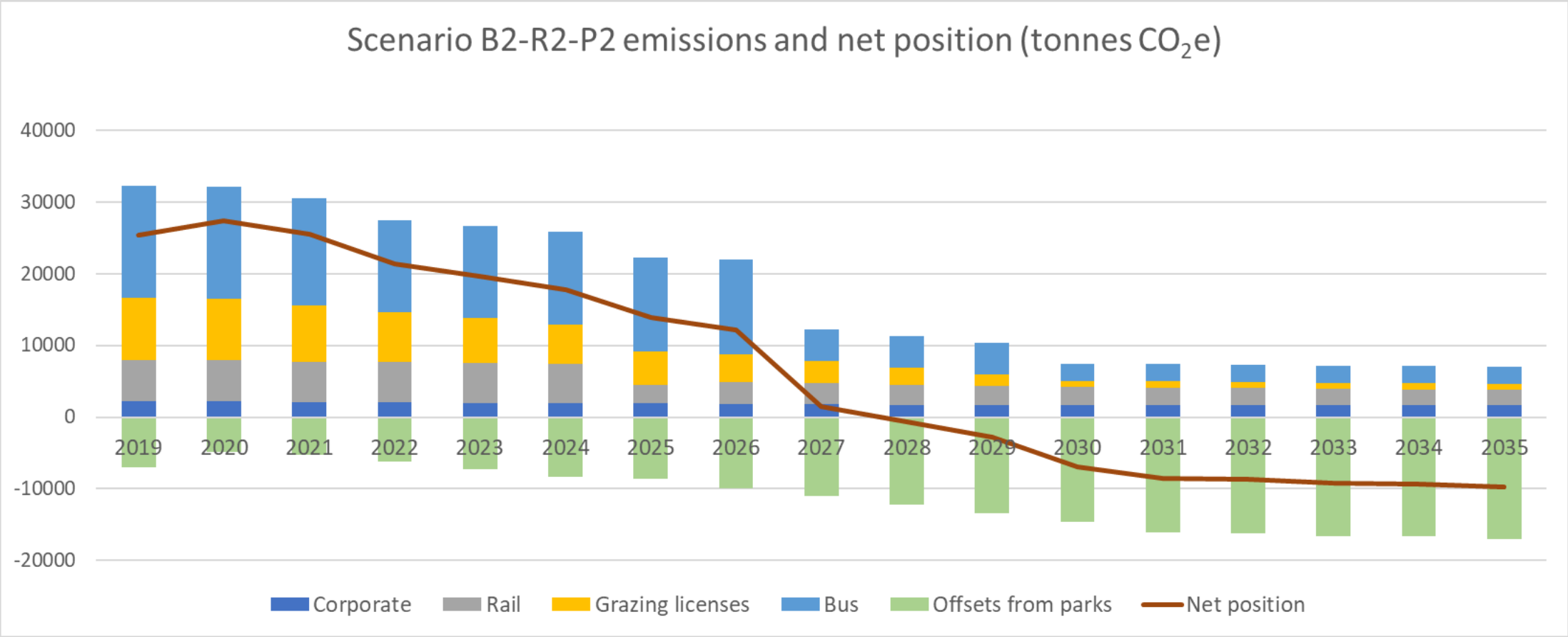
Why is B2-R1-P1.5 officer's preferred option?

- This option allows us to meet our carbon positive goals by 2035, while also optimising costs
- This is a more achievable and affordable option, given we are facing double digit rates increases for the next five or so years
- Staff have deemed P2 unachievable (more on the next slide)
- R2 seems to be unaffordable, and unnecessary to meet our carbon positive goals

Why is P2 not achievable? (P1.5 versus P2)

- Large scale restoration needs to be well-planned, and should align with our master planning process, which will also identify recreational areas within parks
- Requires large scale plant procurement, this option will put pressure on existing suppliers, no time for new suppliers to get into business
- We can only plant at certain times of the year, which means we would be at risk of not delivering
- We need to engage with mana whenua on design, implementation and sites of significance, this takes time and is reliant on their capacity and capability
- This option would put staff and contractors under extreme pressure, which is unnecessary given we can achieve our carbon positive goals with P1.5

Other scenario - B2-R2-P2



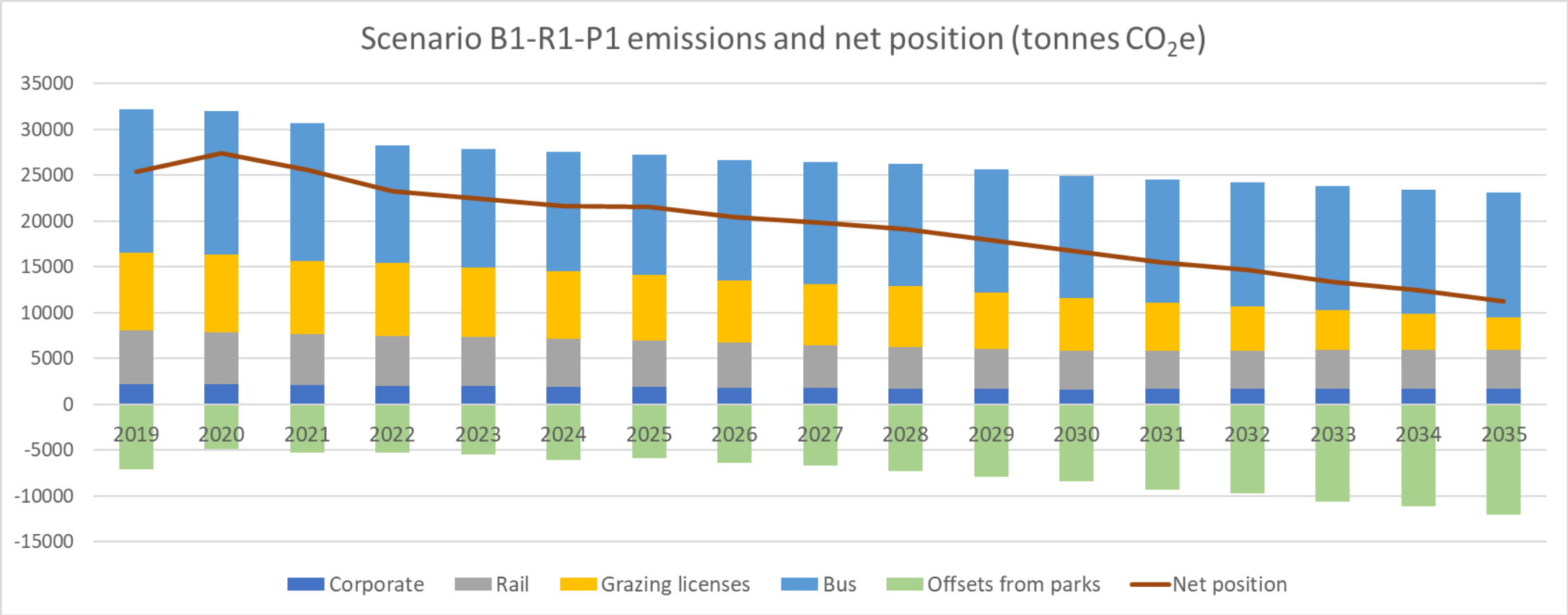
- Carbon positive goal achieved

Other scenario - B2-R2-P2

tCO ₂ e	Budget	Gross emissions	Difference	Sequestration	Shortfall
2021-25	N/A	133870	0	-35777	-35777
2026-30	38877	64339	25462	-61083	-35621
2031-35	0	36913	36913	-82469	-45556
				Total	-116954
				Pre-2021 emission unit reserve	-86,129
				Net emission unit position	-203,083
				Value at \$150/tCO ₂ e	\$ 30,462,514

- No external emissions unit purchase needed to maintain carbon neutral status, surplus emissions units
- After further consideration we do not think this scenario is achievable for parks, or affordable for rail

Other scenario - B1-R1-P1



- Carbon positive goal not achieved

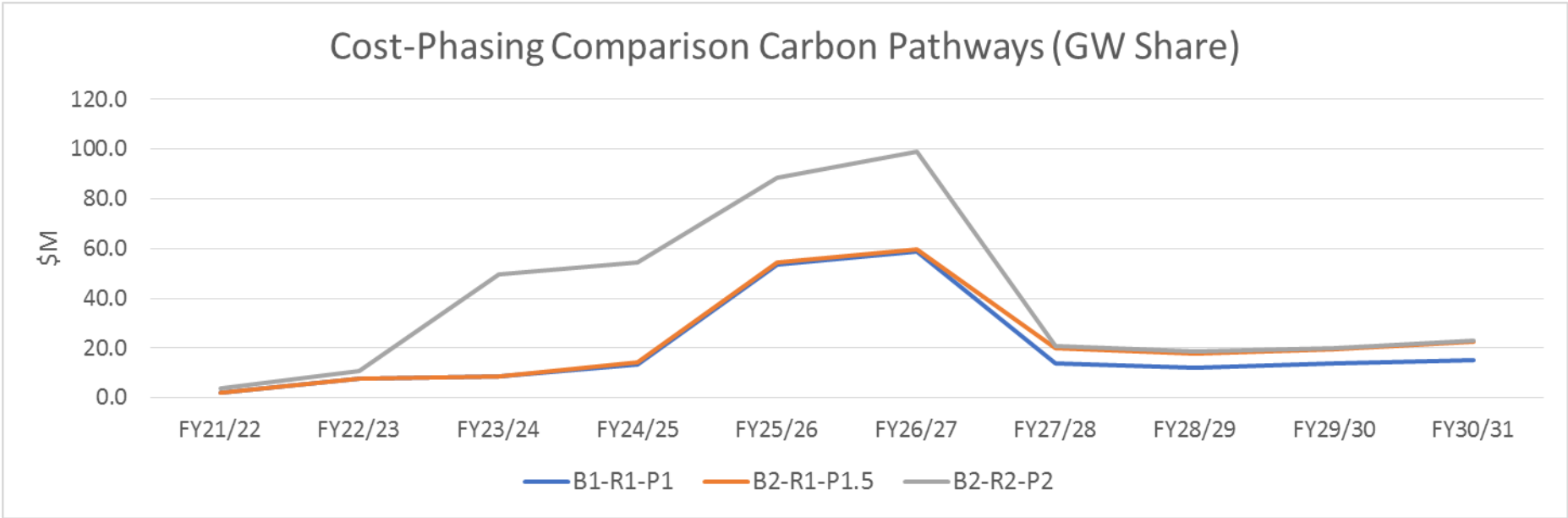
Other scenario - B1-R1-P1

tCO ₂ e	Budget	Gross emissions	Difference	Sequestration	Shortfall
2021-25	N/A	142485	0	-27988	-27988
2026-30	38877	130761	91884	-36736	55147
2031-35	0	120026	120026	-52865	67161
				Total	94320
				Pre-2021 emission unit reserve	-86,129
				Net emission unit position	8,191
				Value at \$150/tCO ₂	-\$ 1,228,677

- No surplus emissions units
- External emissions unit purchase needed to maintain carbon neutral status
- ~\$2.2M/year expense from 2035
- But suggest we include this as a low option in the LTP consultation

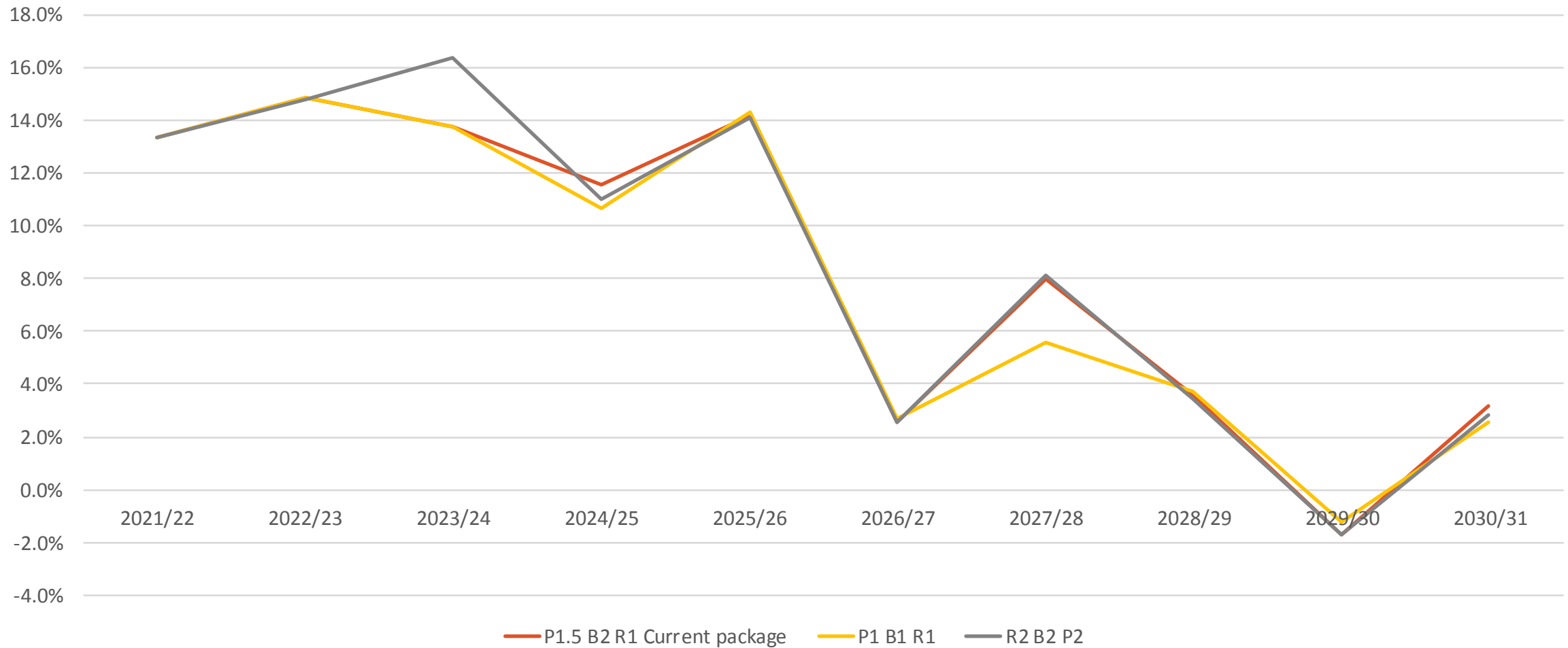
Comparison table

Scenario	Carbon positive goal reached?	Spare emissions units	Combined cost estimate (GW share)	Total combined cost estimate
B1-R1-P1	No	-8,200	\$204M	\$391M
B2-R1-P1.5	Yes	140,000	\$227M	\$435M
B2-R2-P2	Yes	203,000	\$389M	\$755M

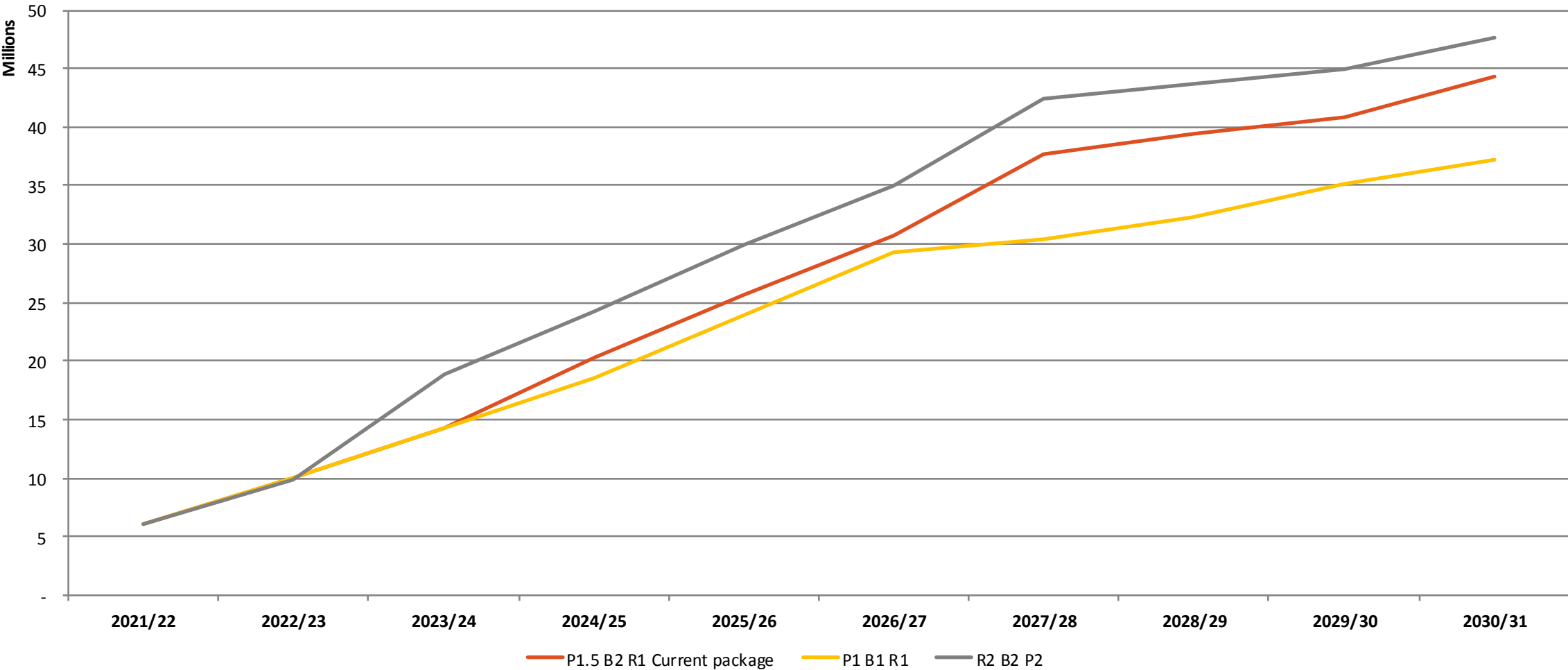


*Note:
Impact of any potential LCAF funding not shown (~\$7M left in the fund)*

Rates % increase – comparison against LTP budget



Impact on rates over 10 years



Summary

- B2-R1-P1.5 is an achievable option which optimises cost and achieves our carbon positive goal
- B2-R2-P2 maximises carbon reduction, but is unachievable for parks and unaffordable for rail
- B1-R1-P1 minimises costs but is inconsistent with the carbon positive goal, and creates an ongoing liability for procuring carbon offsets after 2034 to maintain carbon neutral status
- All three are valid options for the LTP consultation document, officers' recommend the option currently budgeted, B2-R1-P1.5

Questions?