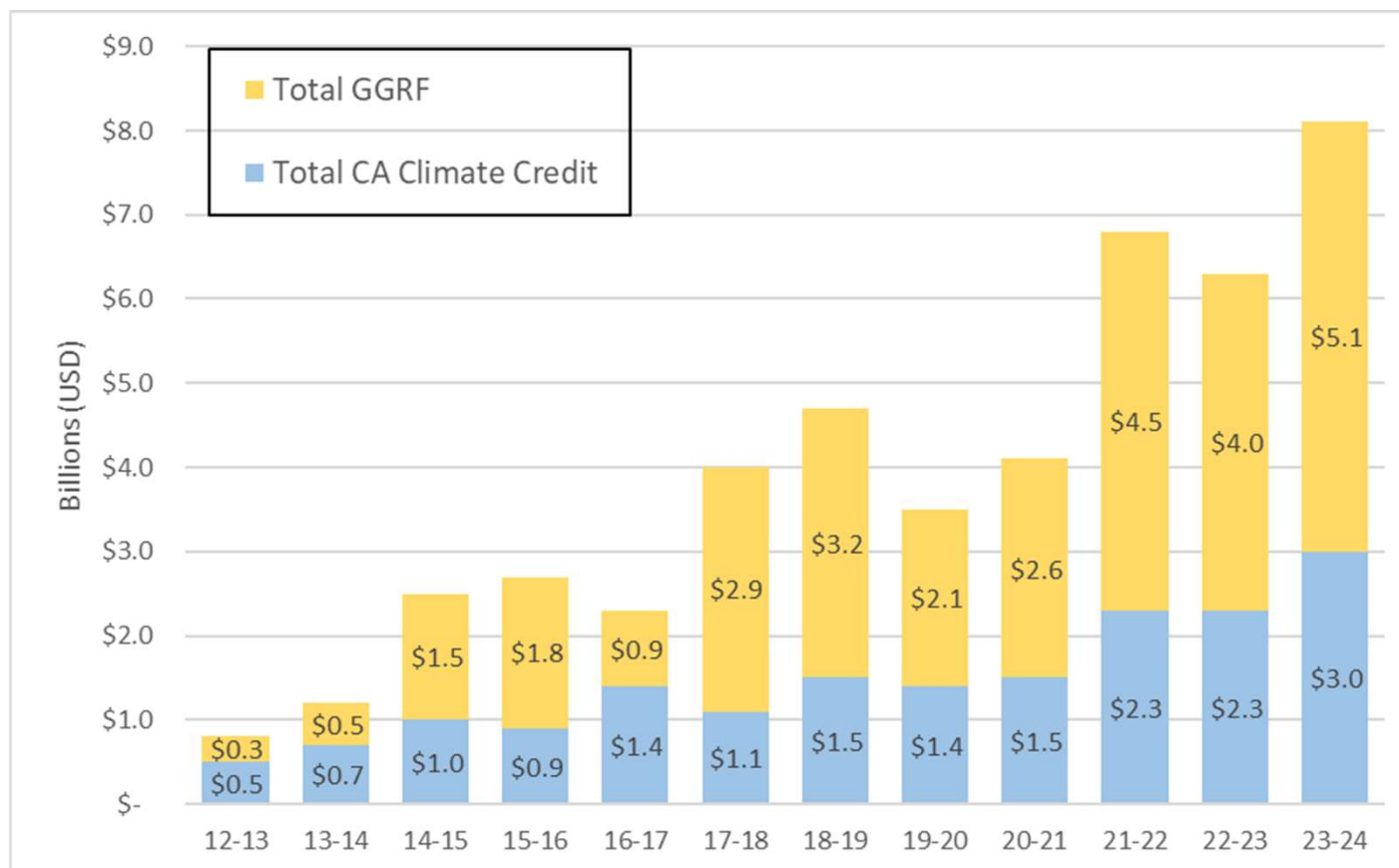


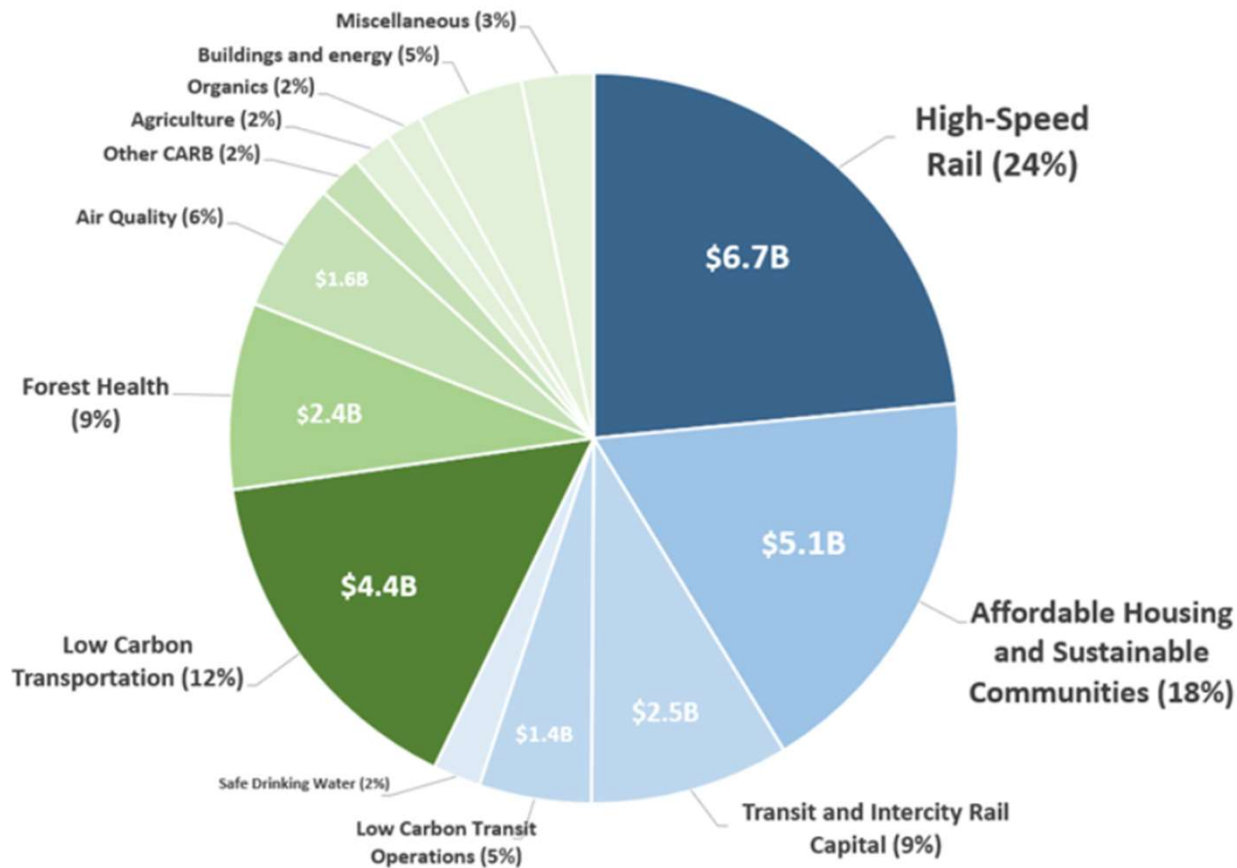
# How big is GGRF?



## Key takeaways

- Authorized in 2012-13
- 12 years of operation
- \$4-5B in recent years

# Where does the money go?



## Key takeaways

- \$28B appropriated to date
- \$15B implemented to date
- ~65% is continuous (blue) per [SB 862](#) (2014)
- ~35% is discretionary (green)
- Total 90 programs at 24 state agencies

# How well is the money spent? (1 of 2)

## Sample of individual programs:

#	Description	Agency	\$/tCO2e
1	Sustainable Agricultural Lands Conservation Program	SGC / DOC	\$ 8
2	Healthy Soils	CDFA	\$ 107
2	Clean Truck and Bus Vouchers	CARB	\$ 323
2	Clean Vehicle Rebate Project	CARB	\$ 368
4	Urban Greening	CNRA	\$ 2,657
5	Sustainable Transportation Equity Project	CARB	\$ 9,043

### Key takeaways

- Individual programs range in cost-effectiveness from ~\$8/ton to ~\$9,000/ton
- There are also multiple programs that achieve zero GHG reductions (i.e., effectively higher than \$9,000/ton)

# How well is the money spent? (2 of 2)

## GGRF portfolio cost-effectiveness estimates:

#	Description	\$/tCO <sub>2</sub> e
1	Divide total dollars spent ( <u>\$11B</u> ) by total emissions reductions (109 MMTCO <sub>2</sub> e) - <i>Excludes HSR</i>	\$ 101
2	Divide total dollars spent ( <u>\$15B</u> ) by total emissions reductions (109 MMTCO <sub>2</sub> e) - <i>Includes HSR</i>	\$ 135
3	Average \$/ton of all programs, weighted by the share of total GGRF funding they have received	\$ 1,003

### Key takeaways

- Multiple options to calculate portfolio cost-effectiveness
- CCI reports \$101/tCO<sub>2</sub>e
- Weighted average may be a better measure\*\*

\*\* For more information, see [Data Analysis of GGRF](#)

# Best performing programs?

Program	Total Implemented (\$M)	% of Total	GHG reductions ('000 tCO2e)	% of Total	Cost per GHG (\$/ton)
Sustainable Agricultural Lands Conservation Program	\$ 122	1%	15,080	14%	\$ 8
Dairy Digester Research and Development Program	\$ 203	1%	21,881	20%	\$ 9
Forest Health Program	\$ 557	4%	20,575	19%	\$ 27
<b>Subtotal</b>	<b>\$ 883</b>	<b>6%</b>	<b>57,536</b>	<b>53%</b>	<b>\$ 15</b>
<i>87 remaining programs</i>	<i>\$ 13,838</i>	<i>94%</i>	<i>51,625</i>	<i>47%</i>	<i>-</i>
<b>Total</b>	<b>\$ 14,720</b>	<b>100%</b>	<b>109,161</b>	<b>100%</b>	<b>-</b>

## Key takeaways

- 3 programs provide 53% of total GHG reductions with 6% of funding
- 87 programs provide 47% of total GHG reductions with 94% of funding

# Continuous allocations

▪ HSR estimates 160,000 tCO<sub>2</sub>e by 2030; would equal \$84,375/ton\*

#	Program	Total GGRF appr. (\$M)	Total GGRF spent (\$M)	Total GHGs ('000 tCO <sub>2</sub> e)	GGRF \$/ton
1	High-Speed Rail	\$ 6,700	\$ 3,700	-	-
2	Aff. Housing and Sust. Comm.	\$ 5,129	\$ 2,306	18,825	\$ 123
	<i>SALC program</i>	\$ 359	\$ 122	15,080	\$ 8
	<i>Other AHSC</i>	\$ 4,770	\$ 2,184	3,745	\$ 583
3	Transit and Intercity Rail Capital	\$ 2,518	\$ 1,704	23,459	\$ 73
4	Low Carbon Transit Operations	\$ 1,418	\$ 932	6,972	\$ 134
5	Safe Drinking Water	\$ 604	\$ 161	-	-
<b>Continuous subtotal</b>		<b>\$ 16,369</b>	<b>\$ 8,804</b>	<b>49,256</b>	
<i>Discretionary subtotal</i>		<i>\$ 11,170</i>	<i>\$ 5,916</i>	<i>59,905</i>	
<b>Total</b>		<b>\$ 27,538</b>	<b>\$ 14,720</b>	<b>109,161</b>	

▪ SALC drives the AHSC estimate; o/wise > \$500/ton

▪ Includes 245 individual transit projects; 20 projects (8%) provide 70% of reductions.

\* Assumes planned \$13B allocation to 2030

# GGRF vs. total project costs

- Low % contribution indicates program may not need GGRF

## Key takeaways

- GGRF only provides a portion of total project costs
- If total project costs factored in, \$/ton's increase significantly

#	Program	Total project cost (\$M)	Total GGRF spent (\$M)	GGRF contrib'n (%)	Total GHGs ('000 tCO2e)	GGRF \$/ton	Total project cost \$/ton
1	High-Speed Rail	\$ 22,100	\$ 3,700	17%	-	-	-
2	Aff. Housing and Sust. Comm.	\$ 9,257	\$ 2,306	25%	18,825	\$ 123	\$ 492
	<i>SALC program</i>	\$ 212	\$ 122	58%	15,080	\$ 8	\$ 14
	<i>Other AHSC</i>	\$ 9,045	\$ 2,184	24%	3,745	\$ 583	\$ 2,415
3	Transit and Intercity Rail Capital	\$ 101,478	\$ 1,704	2%	23,459	\$ 73	\$ 4,326
4	Low Carbon Transit Operations	\$ 8,778	\$ 932	11%	6,972	\$ 134	\$ 1,259
5	Safe Drinking Water	\$ 184	\$ 161	88%	-	-	-
<b>Continuous subtotal</b>		<b>\$ 141,797</b>	<b>\$ 8,804</b>				

- \$/ton's increase significantly under total project cost

# High-Speed Rail

## Long-range HSR cost-effectiveness estimate\*\*:

<i>Build cost scenario</i>	Est. Total project cost (\$M)	Est. Total GGRF cont'n (\$M)	Est. Total GHGs ('000 tCO <sub>2</sub> e)	\$/ton (GGRF only)	\$/ton (total cost)
<i>Low</i>	\$88,545	\$33,959	23,000	\$1,476.48	\$3,849.78
<i>Medium</i>	\$106,163	\$40,716	23,000	\$1,770.26	\$4,615.78
<i>High</i>	\$128,000	\$49,091	23,000	\$2,134.39	\$5,565.22

### Key takeaway

- Assuming no further cost increases and completion by 2045, would generate 23 MMTCO<sub>2</sub>e at \$1,476 to \$2,134/ton

\*\* For more information, see [Data Analysis of GGRF](#)



# GGRF vs. 2022 Scoping Plan

- Net-Zero California performed an analysis on the alignment between current GGRF allocations and the 2022 Scoping Plan.
- The main conclusion was that there is a large mismatch between current GGRF allocations, the majority of which were set in 2014 and prior to both SB 32 (2017, Pavley) and AB 1279 (2022, Muratsuchi), and the 2022 Scoping Plan.
- See: [Aligning GGRF with the 2022 Scoping Plan](#)

# Our perspective

- A potential revision to GGRF allocations can only properly be determined after clear goals for the program are established.
- If it is decided that the objective is to optimize around a combination of GHGs-affordability-resilience, our broad case would be that the money should be spent as follows:
  - **Clean energy infrastructure:** Large-scale transmission, pipelines, storage, etc. projects via low-interest loans/similar
  - **Technology innovation:** High-cost decarbonization options identified as needed at scale: clean firm/long duration storage, clean fuels, carbon capture/removal, etc.
  - **Climate resilience:** Wildfire prevention in forests and WUI, similar
- Consumer rebates: Hard to make the case, today, that the CA Climate Credit is meaningful for affordability. There is potential for restructuring it. But need to figure out how meaningful this can be vs. an alternative investment strategy.