Achieving 2050 Greenhouse Emission Reductions in the On-Road Heavy Duty Vehicle Sector

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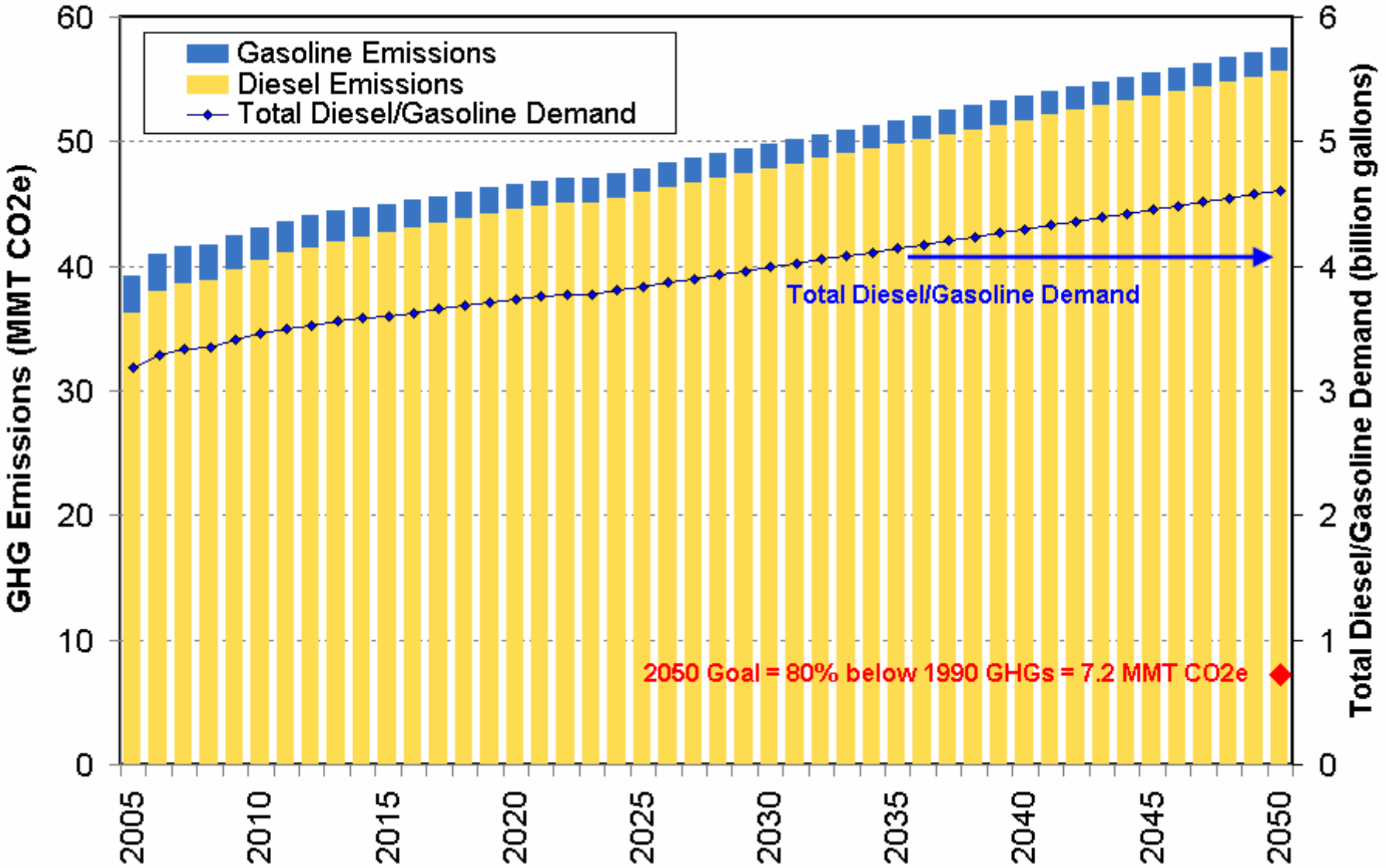
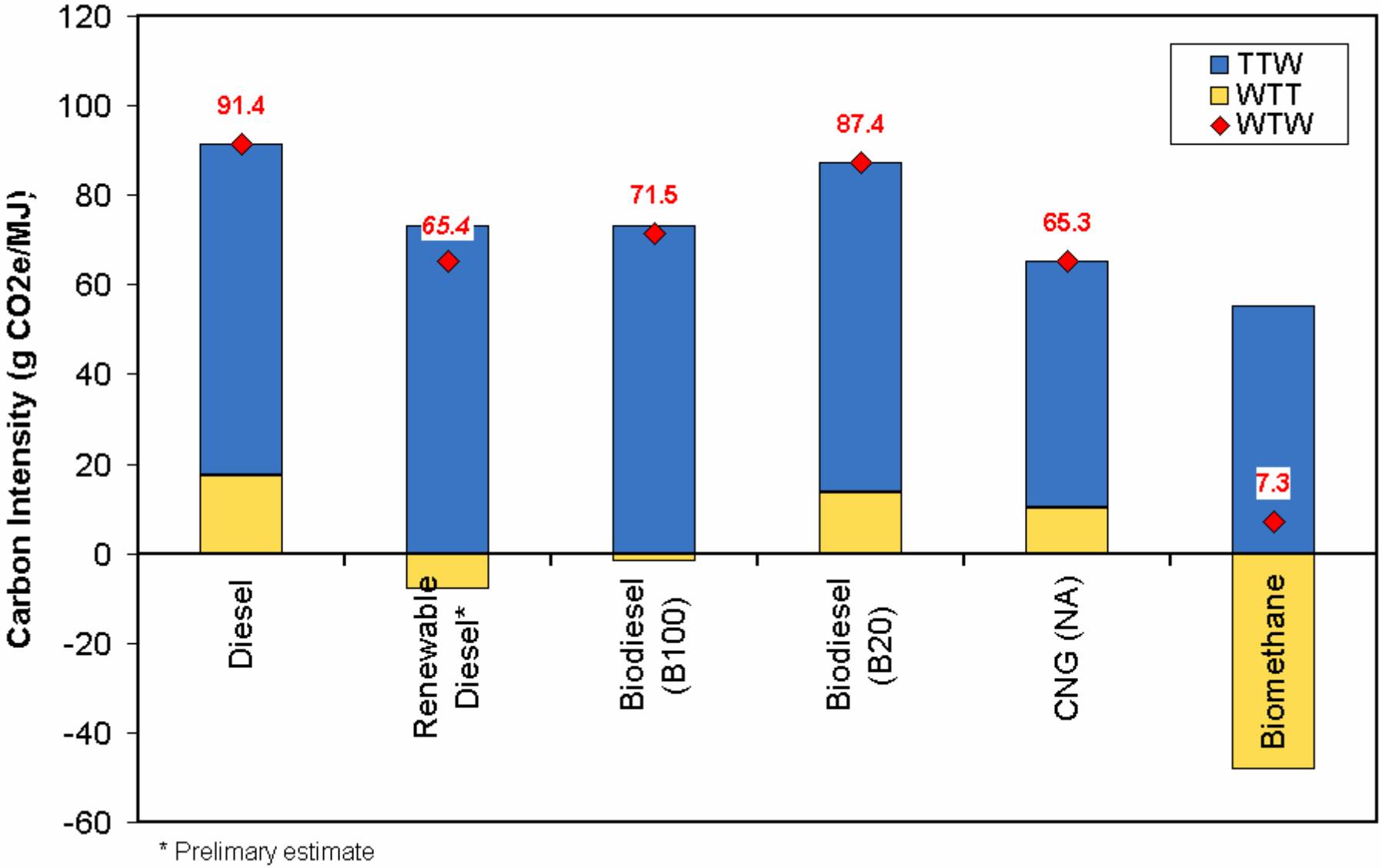
California On-Road MD/HD WTW GHG Emissions and Fuel Demand



Comparison of Carbon Intensity for the Various Technologies



* Prelimary estimate

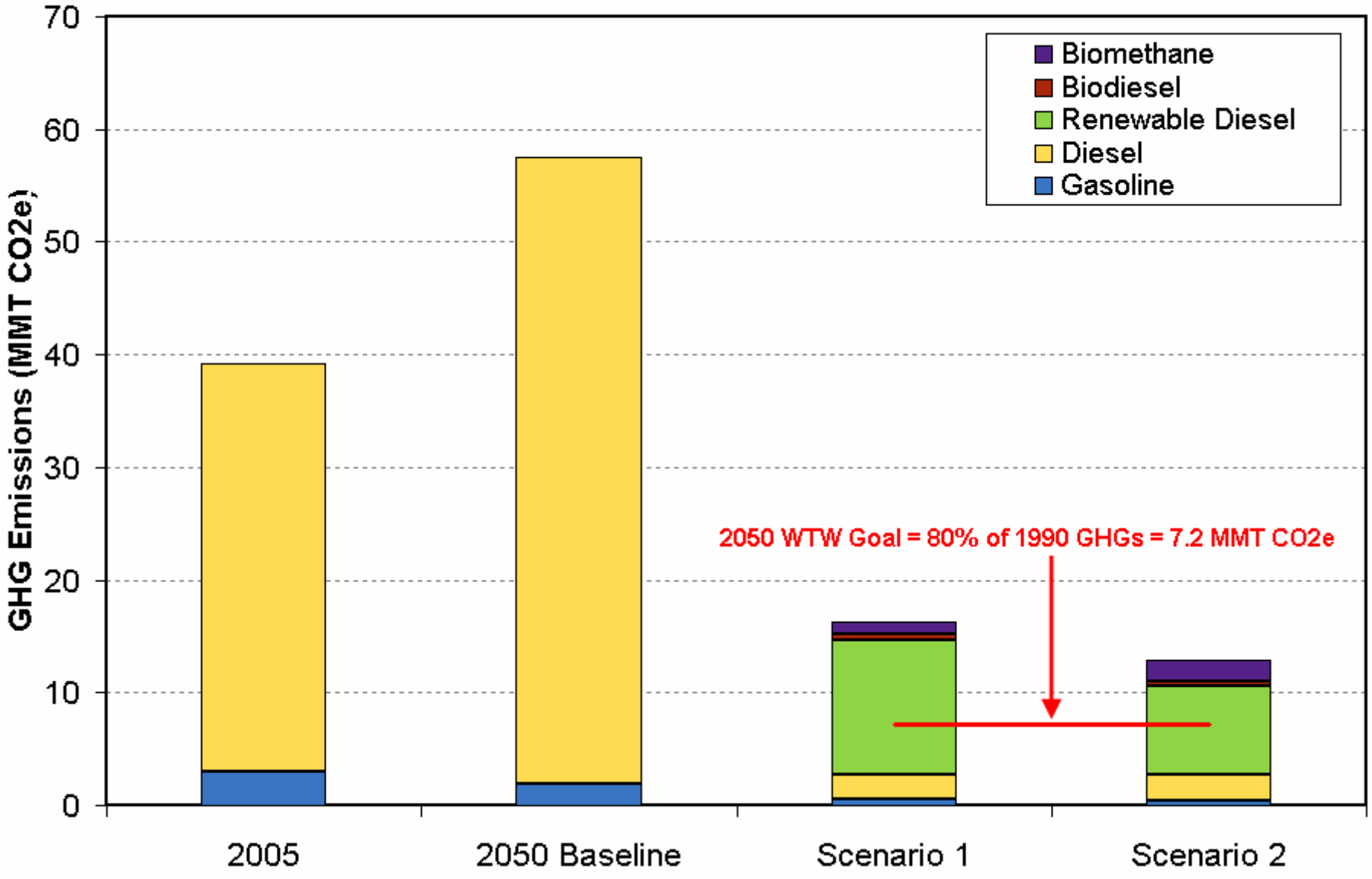
Is it possible to achieve the on road medium and heavy duty 2050 GHG goals with a combination of technology options?

Assumptions:

- Vehicle efficiency (miles/MJ) doubled over entire segment from class 3 through 8 trucks
- Biodiesel blended at 20% (B20) in all conventional diesel
- Aggressive introduction of renewable diesel
- Aggressive use of biomethane

	HDV Scenarios		
	Baseline	1	2
Vehicle Efficiency Improvement from Baseline	0%	100%	100%
Blended Diesel Penetration	100%	10%	10%
Renewable Diesel Penetration		60%	40%
Biomethane Penetration		30%	50%

Projection of MD and HD GHG Emissions in 2050



Aggressive adoption of higher vehicle efficiencies coupled with renewable fuel pathways can achieve substantial GHG reductions in on road sector by 2050 but these reductions still fall short of goal

What types of policies will encourage GHG reductions? Carbon and fuel pricing maybe insufficient to achieve aggressive reduction goals.

- ***Intermodal***
- ***Fuels***
- ***Technology***
- ***Operations***
- ***Logistics***
- ***Demand***