



California Air Resources Board (ARB)

Regulation of High-GWP Refrigerants



California Environmental Protection Agency

AIR RESOURCES BOARD

ARB Refrigerant Regulations Background

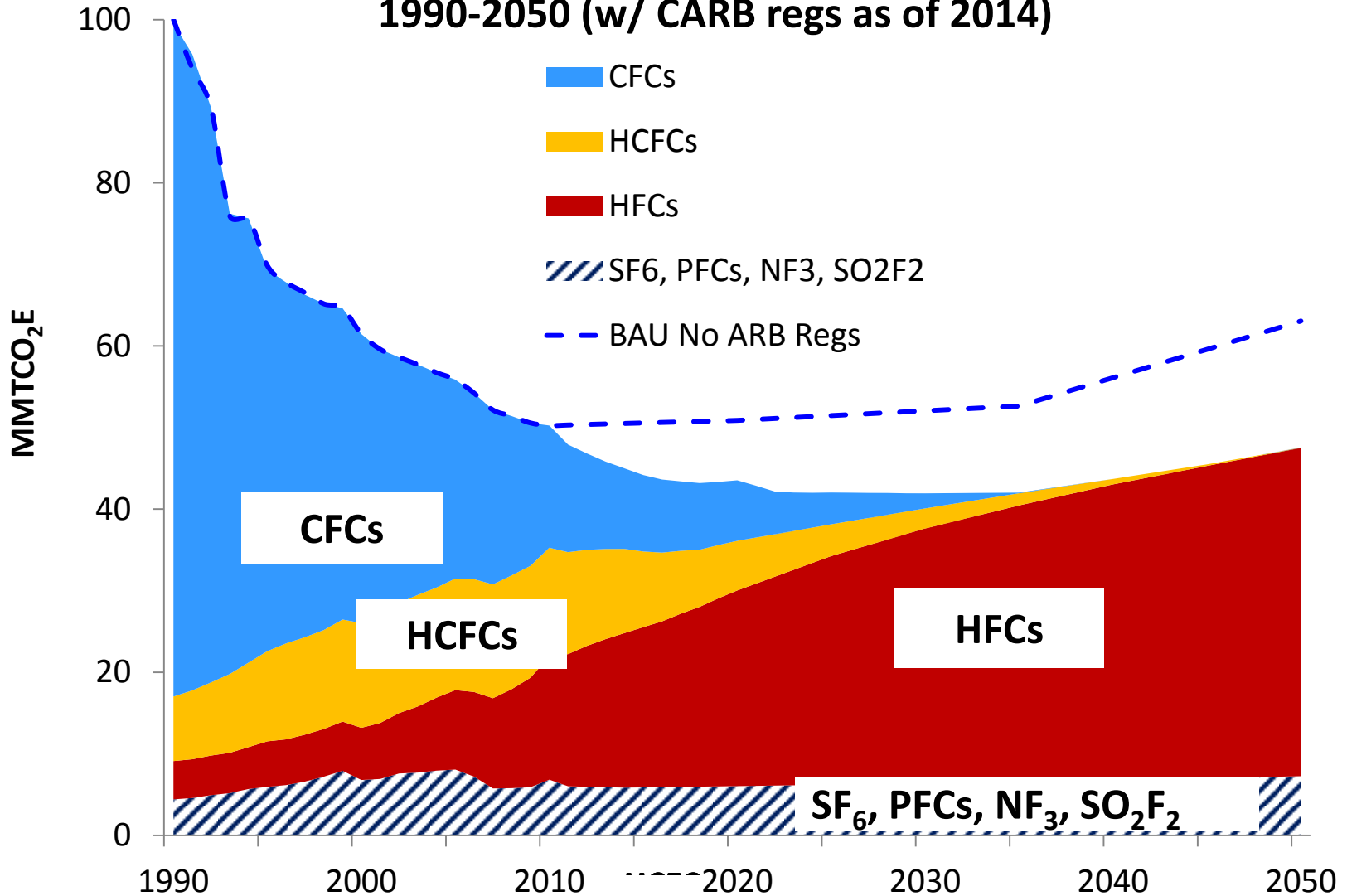
AB 32: Reduce GHGs to 1990 levels by 2020.

Governor's EO: Reduce GHGs 80% by 2050.

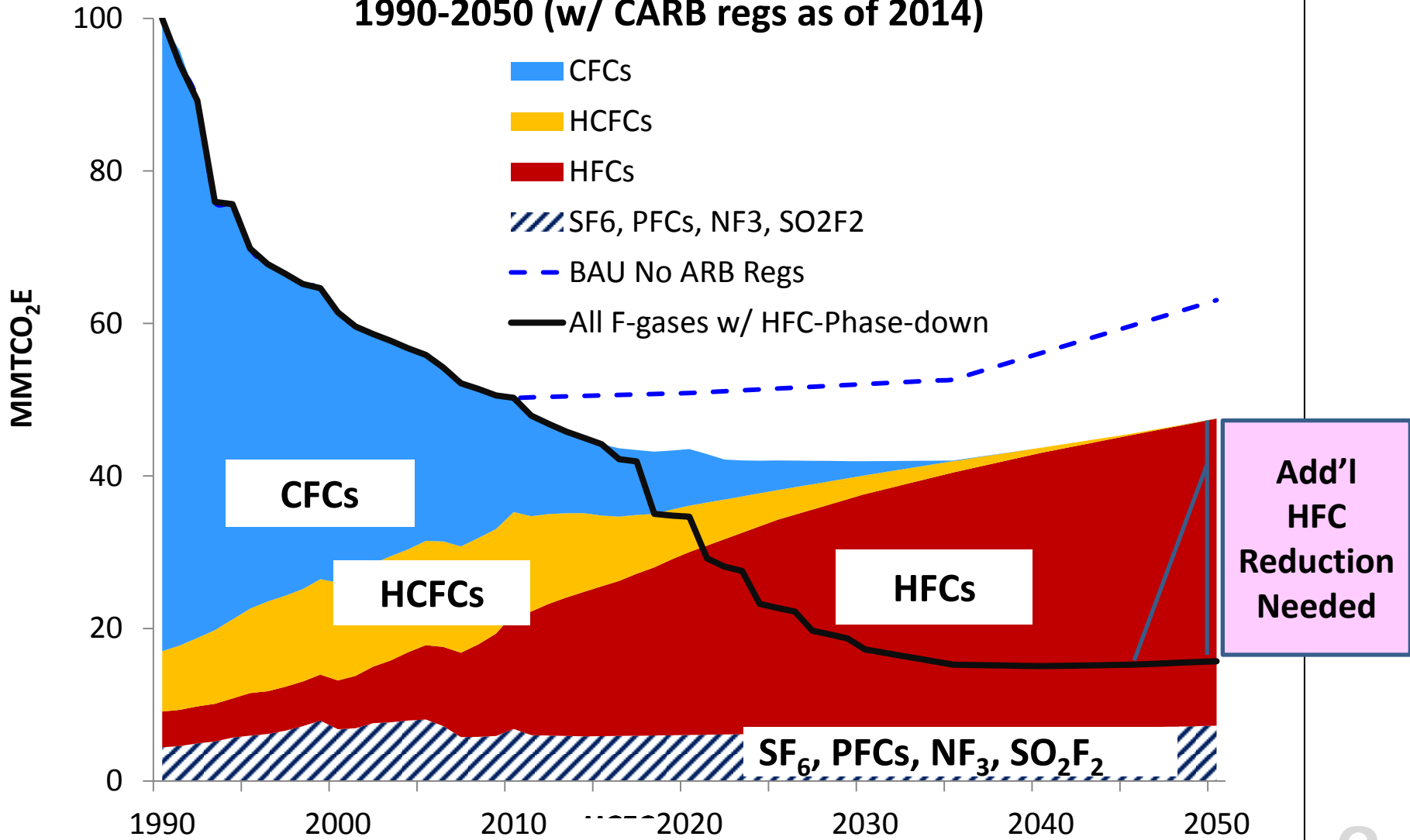
Existing ARB Regulations:

- 1) Refrigerant management program;
- 2) Vehicle AC: deposit on small can refrigerant;
- 3) Low-GWP aerosol propellants;
- 4) ODS Destruction Protocol for GHG Offsets.¹

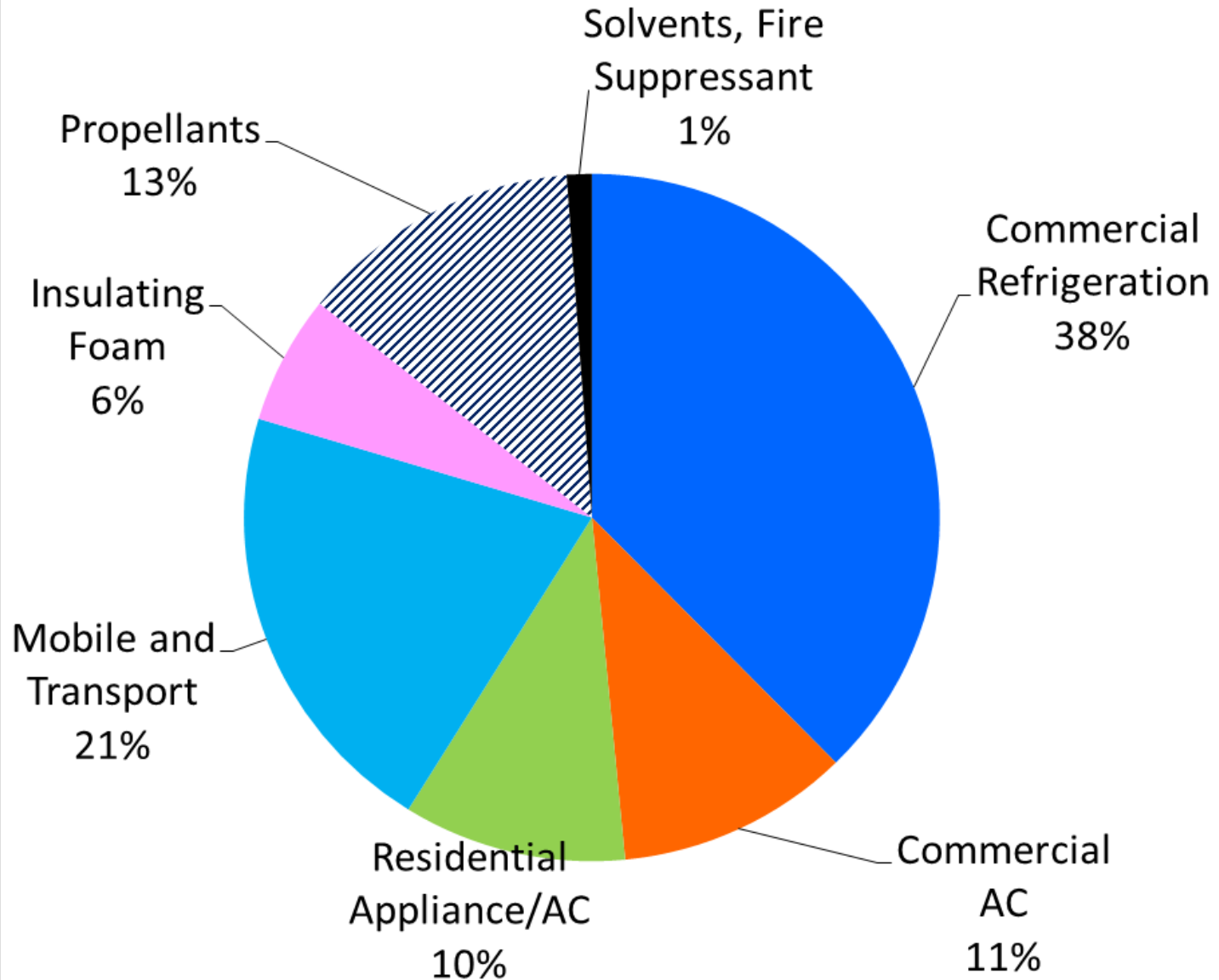
F-gas Emissions in California, Estimated Projections 1990-2050 (w/ CARB regs as of 2014)



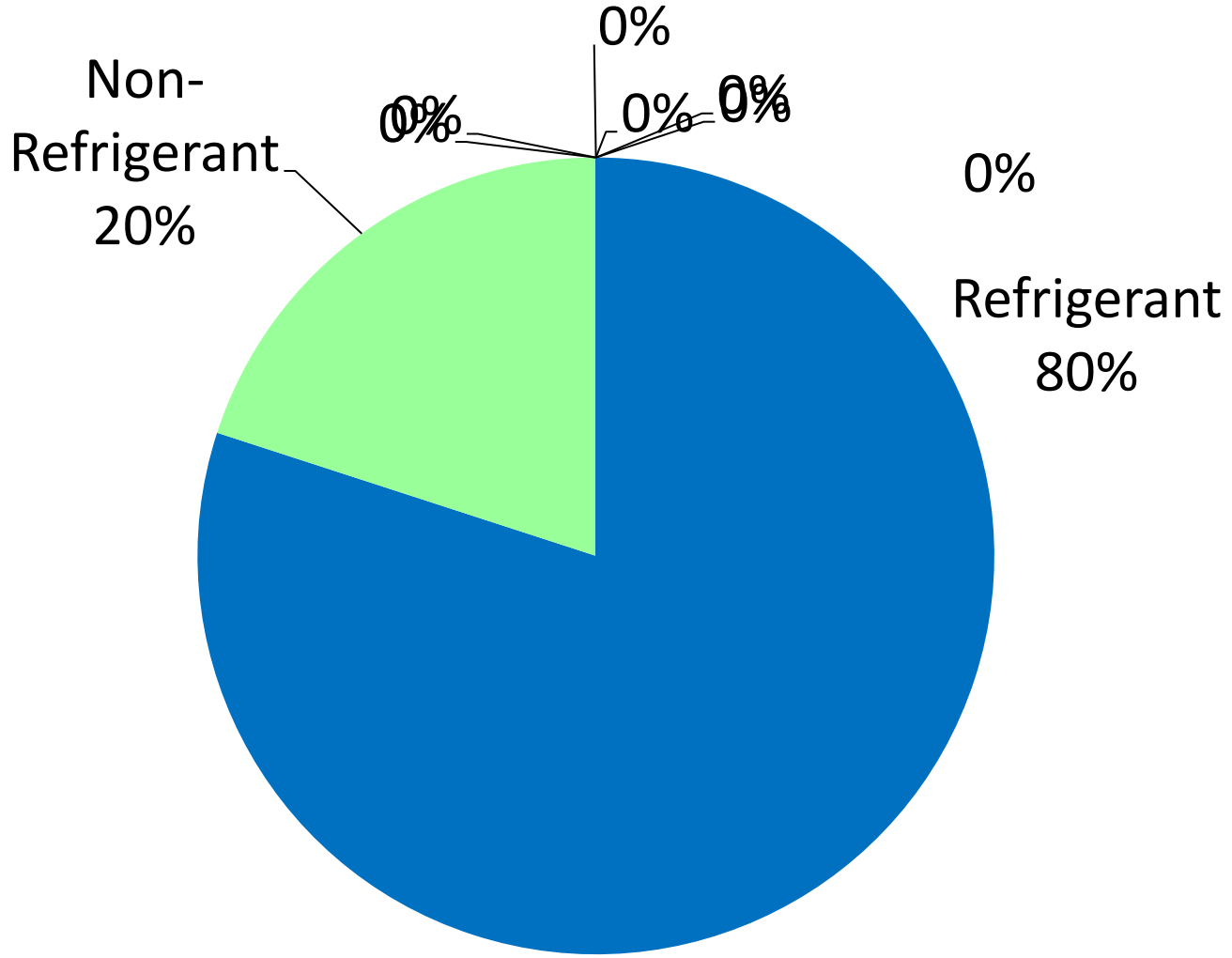
F-gas Emissions in California, Estimated Projections 1990-2050 (w/ CARB regs as of 2014)



2013 Sources of HFCs in CA (18.6 MMTCO₂E)



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Natural Refrigerants and other Refrigerant Reduction Options

- a. Natural refrigerants are low-GWP (<150 GWP) and fit into AB 32 reduction goals.
- b. > 80% large industrial cooling is ammonia.
- c. Secondary cooling with CO₂ increasing.
- d. ARB is chemical neutral on low-GWP as long as it meets US EPA SNAP approval.

ARB F-gas Programs Proposed (Scoping Plan)

1. High-GWP F-gas phasedown
(only 21% of baseline by 2030).
2. High-GWP bans.
3. High-GWP Fee.
4. More ODS destruction offset programs.

Note: No decision has been made on what approach, or combination of approaches ARB will take.

ARB Scoping Plan Comments

Six received; positive, no strong opposition

Be more ambitious – more HFC Bans;
pursue 100% HFC phase-out.

Recommend low or lower-GWP alternatives.

Add substitution of HFCs to offset programs.

ARB Next Steps to Reduce F-gases

Focus on Short-lived Climate Pollutants (SLCPs) of HFCs, methane, black carbon, ground level ozone.

SLCP Draft Reduction Plan by 2015.

Please comment when Draft Plan available.

Will collaborate with U.S. EPA and EU to extent possible.

Interactive question: In your view, which type of measure would be the most effective in reducing f-gas emissions in California?

1. High-GWP F-gas phasedown
(only 21% of baseline by 2030).
2. High-GWP bans.
3. High-GWP Fee.
4. More ODS destruction offset programs.
5. Other



business case

natural refrigerants

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Thank you very much!

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