CALIFORNIA
AIR RESOURCES BOARD

CARB ENFORCEMENT NOTICE

HFC Regulation and Battery Energy Storage Systems (BESS)

May 4, 2026

The purpose of this notice is to help the public understand how the California Air Resources Board (CARB) conducts violations enforcement with regard to prohibitions on the use of certain hydrofluorocarbons (HFCs) in refrigeration, air-conditioning, cold storage, chillers and other end uses pursuant to its HFC Regulation at Code of California Regulations (CCR), title 17, section 95371 et seq. as applied to battery energy storage systems (BESS). This notice does not, and is not intended to, cover all possible enforcement circumstances for these regulations; CARB will make case-by-case enforcement determinations.

CARB has established prohibitions on HFC refrigerants used in thermal management systems for BESS. A thermal management system in a BESS utilizes a refrigeration cycle to keep battery temperatures within an optimal range for energy storage and performance. The thermal management system is essential to safe and effective BESS operation; without proper thermal control, battery performance, longevity, and safety may be compromised. Thermal management systems maintain temperatures in BESS via direct or indirect air conditioning systems that typically use HFC refrigerants. Direct air conditioning systems use a refrigerant to cool the battery enclosure or electronics space directly. Indirect air conditioning, classified as industrial process refrigeration (IPR) chillers, use a refrigeration cycle to cool a secondary heat transfer fluid that is circulated to the battery enclosure or electronics in a BESS. A BESS thermal management system does not include equipment that provides building heating, ventilation, and air conditioning (HVAC), that serves to maintain temperatures in occupied spaces, or that supports temperature control for unrelated site loads.

CARB's prohibitions for HFC refrigerants used in BESS thermal management systems apply as follows for both direct and indirect systems respectively: no person can sell, install, use or otherwise enter into commerce in California either (1) new "Other air-conditioning" equipment with a global warming potential (GWP) of 750 or greater as of January 1, 2025 or (2) new "Chillers – industrial process refrigeration" equipment at temperatures > +35 °F with a GWP of 750 or greater as of January 1, 2024.

California Senate Bill 100 (De Leon, Stats. 2018, Ch. 312) [1] sets a goal of powering all retail electricity in California from renewable energy resources and zero-carbon resources by

[1] See Public Utilities Code, §§ 399.11, 399.15, 399.30, and 454.53, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100.

December 31, 2045. BESS plays a central role in California's transition to a decarbonized electrical grid.[2] BESS enable large-scale use of renewable energy by storing excess power when it is available and delivering it during periods of low power generation or during high electricity demand. In doing so, BESS reduce reliance on fossil-fueled generation and support grid stability, flexibility and reliability, while delivering significant statewide greenhouse gas and air quality benefits.

Update on Enforcement Review of BESS Modules

Through this notice, CARB informs regulated entities that it intends to grant on a case-by-case basis, temporary relief from enforcement action until January 1, 2028, from CCR, title 17, section 95375, subdivision (c) for eligible thermal management systems used in BESS modules manufactured before January 1, 2028. Eligible thermal management systems utilize R-410A, R-134a, R-407-series refrigerants, or a refrigerant with an equivalent climate impact.[3] Providing temporary relief in certain cases allows BESS projects in development to proceed while the industry transitions to low-GWP thermal management system designs. This approach preserves the near-term climate and grid benefits of BESS while still supporting the long-term phase-down of high-GWP refrigerants.

Any thermal management system that is manufactured after January 1, 2028, or does not meet the above conditions, will not qualify for CARB's temporary relief from the HFC Regulation prohibitions and will need to comply with the HFC Regulation prohibitions, or apply to CARB for a variance from the HFC Regulation pursuant to CCR, title 17, section 95378.

Entities with qualifying BESS modules should contact CARB with the BESS manufacture date and the planned refrigerant if they wish to take advantage of this temporary relief at HFCReduction@arb.ca.gov. CARB will review requests and exercise its enforcement discretion on a case-by-case basis.

This notice only explains the statutes and regulations and does not alter, amend, or modify the laws in any way. It does not provide any options for alternative relief or safe harbor from potential violations. In the event of any conflicting interpretation, the statutes and regulations control. This notice does not impose any additional requirements, is not a regulation, and does not constitute legal advice.

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[2] CARB's scoping plan identifies improving battery storage infrastructure as a critical strategy for carbon neutrality. CARB 2022 Scoping Plan.

[3] A refrigerant with an equivalent climate impact must have a 100-year GWP that is lower than or equal to 2,804 GWP, such as GWP R-410A (GWP 2,088), R-134a (GWP 1,430) or R-407 series (GWP 1,495 – 2,804) refrigerants per the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC AR 4).