October 30, 2023

The Environmental Investigation Agency (EIA) appreciates this opportunity to provide input to this Request for Information for an assessment report that will specify how to transition California's economy, by sector, away from hydrofluorocarbons (HFCs) and to ultra-low global warming potential (GWP) and/or no-GWP alternatives no later than 2035 through maximizing recovery and reclamation of high-GWP HFCs and the adoption of ultra-low-GWP and/or no-GWP alternatives, as directed by California Senate Bill (SB) 1206.

EIA is an independent campaigning organization based in Washington D.C., working worldwide to protect the global climate, forests, and threatened species with intelligence, for the benefit of people and wildlife. We have undertaken groundbreaking investigations into the illegal trade in ozone depleting substances (ODS) and other fluorinated substances such as HFCs since the mid-1990s and have been closely involved in international ozone and climate negotiations and domestic policy regarding these substances for several decades.

Section 1: Commercial and Industrial Stationary Refrigeration (Retail Food, Cold Storage, Industrial Process Refrigeration, and Ice Rinks)

Below are questions regarding transitioning small- and large-sized refrigeration systems to ultra-low GWP or no-GWP refrigerant technologies:

1. What potential technological solutions are available for existing facilities and how can their adoption be accelerated?

There are a range of technologies available to transition existing systems to ultra-low or no-GWP refrigerants in commercial refrigeration, ice rinks, and cold storage/IPR. EIA recommends that CARB consider additional GWP bans that apply to replacement of refrigeration systems in existing facilities, particularly for ice rinks and other types of applications that commonly use "indirect" refrigeration systems employing a chiller with a secondary fluid. Chillers utilizing ammonia and CO_2 are widely available for ice rinks, supermarkets, cold storage, and industrial process refrigeration and largely compatible with existing secondary loop systems where the chiller can be replaced.

Incentives should also be expanded to newer technologies and equipment that can be used in commercial refrigeration. For example, large direct expansion refrigeration systems in food retail can be substituted with distributed systems employing self-contained equipment and remote condensing units utilizing hydrocarbons, which have recently been approved to use up to 500 grams of refrigerant charge for propane (R-290).
In the state of California, at least 80% of ice rinks already use ammonia.[1] While refrigerants over 150 GWP have been banned in the state for new ice rinks, CO_2 is a preferable alternative to

hydrofluoroolefins (HFO) options and is currently utilized by 80 rinks across the country[2], such as the NHL's Columbus Blue Jackets.[3] CO_2 systems also include energy savings over HFCs/HFOs, as the heat reclaim from Nationwide Arena is used to preheat hot water, support snowmelt, and provide underfloor heating. This technology is widely available and can be used to transition existing facilities, as in Columbus, with thousands of rinks currently operating natural refrigerants across North America, there is no need for fluorinated gases to meet the technological or market demands in ice rink refrigeration.

Several major food retailers have successfully adopted ultra-low GWP refrigerants across the country, many of which are in California. For new store builds, transcritical CO_2 has been the choice for retailers and a recent survey of 13 major retailers shows that demand for CO_2 in new builds and replacement systems in this sector is expected to grow 313% between 2023 and 2027, crediting regulations and corporate ESG targets as the main drivers.[4]

2. What incentives are needed to transition existing refrigeration facilities and what GWP limit should be set for technologies supported through incentives?

We advise setting a GWP limit of <10 (ultra-low GWP as per SB1206 definition) for all incentives in this sector. As the HFC phase-down progresses, with a 30% reduction in consumption set for 2024, costs of HFCs are anticipated to skyrocket as the supply decreases. To maximize climate benefits and reduce costs in the long run, it is in the best interest of end users to transition systems now. Following the 2017 enactment of HFC phase-down regulations in the European Union, HFC prices reached up to 13 times the pre-regulation prices and have sustained well above five times.[5] For example, transitioning a single supermarket to natural refrigerants can save $2,800 annually per store based on current prices.[6] With similar expected price increases to the EU, this could grow quickly to $14,000 annually, or $280,000 over a system's 20-year lifetime. This more than offsets the higher upfront capital costs of the ultra-low GWP refrigeration system.

To accelerate the transition of existing refrigeration systems, we recommend incentives that strongly encourage end users to bypass retrofitting from high to medium-GWP systems, which will be incentivized by the global HFC-phase-down without any additional incentives, and instead provide additional incentives to make the move to using ultra-low GWP.

Section 2: Stationary Air Conditioning & Space Conditioning Heat Pumps

5. There are limited ultra-low-GWP and/or no-GWP technologies for this sector. How can technological innovation be encouraged?

CARB should work with other relevant federal and state agencies to create a test market and associated funding window for proposals for limited pilot and demonstration projects that can be rapidly expedited, even if utilizing refrigerants that may not yet be SNAP approved or permitted by current industry safety standards and building codes.

Such a program should provide funding and grants to support pilot and demonstration projects for such technologies that enable ultra-low or no-GWP for the air conditioning and heat pump sectors. Technologies eligible for such support should include both non-vapor compression technologies, as well as refrigerant-based technologies using ultra-low or no-GWP refrigerants. This should also focus on technologies that do not pose potential concerns for yielding persistent breakdown products under California's definition of per- or poly- fluoroalkyl substances (PFAS). Such projects should cover a range of equipment used in both residential and commercial multi-use building types including in window units, PTACs, mini-splits, multi-splits, ducted air conditioners, and others. Finally, EIA urges CARB to specifically support companies in developing hydronic or indirect systems employing A3 refrigerants in outside installations. A range of existing systems, including even ducted residential air conditioning systems, could be redesigned to safely utilize ultra-low GWP A3 refrigerants in an external indirect system where the flammable refrigerant does not interact with the air being circulated into the occupied space.

6. What types of ultra-low GWP technologies for this sector are available in other markets globally, but not in the US? What do you see as the primary market barriers to the adoption of these technologies in the US?

The primary market barriers to this technology are the outdated, restrictive safety standards and building codes that limit the charge size of A3 flammable refrigerants. Although international safety standards exist that allow for up to 1kg of R-290 for a split or self-contained direct system and up to 5kg of R-290 in an indirect outdoor system, these standards have not yet been adopted by U.S. safety standards.

Highly energy efficient commercially available hydrocarbon ACs have been developed in India by Godrej & Boyce and have had some limited introduction in China by Midea and others. The globally installed base of R-290 splits is estimated to exceed 800,000[7] and 2% of the India market in 2017-18.[8] In key markets such as the United States, European Union, China, and Japan, the updated IEC standard will first need to be adopted by national or regional safety standards bodies.

California should consider adopting an updated state building code that harmonizes with the charge size requirements in the IEC 60335-2-40 Edition 7 standard that was published in 2022.[9] This standard opens up a pathway to accelerate the transition to climate-friendly alternatives, and it includes strong safety features and revised limits on the quantities that can be used in a given application. Equipment designed with additional features such as leak sensors and airflow to disperse any leak will ensure there is no increased safety risk compared with existing equipment.[10]

Additionally, there is opportunity for innovation with indirect air-to-water heat pumps using R-290, which show great promise as safe, cost-effective, efficient, and climate-friendly solutions for residential heat pumps. This technology will support building decarbonization and introduction of heat pumps in existing buildings, particularly as convenient and cost-effective building retrofits for replacing boilers that rely on hydronic delivery systems for heating.

Hydronic systems require no expensive duct work installation, while also avoiding the need to install or replace refrigerant line sets required for ductless split systems. The thermodynamic properties of R-290 make it the most efficient low-GWP refrigerant option that can provide adequate capacity and efficiency in this type of building retrofit application to a hydronic system such as a monobloc heat pump. These systems utilize R-290 as the primary refrigerant in a closed loop system located outdoors or on rooftops and a secondary non-flammable fluid such as water to deliver heating and hot water for residential use inside the building. Any such leak would remain outdoors and disperse rapidly in open air and equipment installed per code such that nearby ignition sources or points of venting into the building are avoided.

7. How can centralized ducted AC systems be transitioned to ultra-low GWP or no-GWP technologies?

These systems may be redesigned as indirect systems with flammable refrigerant such as propane (R-290), with the primary refrigerant remaining outdoors. As such, the use of a substantial charge size of hydrocarbons may be executed safely, while a secondary fluid would cool the air entering the occupied space thereby ensuring a leak of flammable substance does not enter the occupied space.

8. Many other countries don't use centralized air conditioning systems. Do you have recommendations for creating a market for small self-contained modular heat pump technology (vs. central systems) in California?

A strategy for determining how to address centralized air conditioning systems should consider compatibility with the existing building stock. Buildings and residential sector building stock, in particular with duct work linked to centralized systems, need to have technology options using ultra-low GWP refrigerants for replacing these systems with compatible systems.

So, while centralized systems should not be excluded from the strategy to develop ultra-low GWP technologies, California can also incentivize users to transition to self-contained or modular heat pump technologies. These can have the advantage of simpler installation or maintenance and fewer refrigerant leaks.

9. Do you have recommendations for creating a market for secondary loop/indirect cooling systems in California, particularly for residential and light commercial applications?

We have commented above regarding the need for pilot and demonstration of innovative new designs using secondary loop/indirect cooling. R-290 is a very energy efficient alternative particularly in these indirect or hydronic systems for residential heat pumps to provide hot water and space conditioning. Furthermore, these systems use far less refrigerant and will contain the primary refrigerant to a self-contained factory sealed system that will be less prone to leaks. EIA supports California in providing dedicated incentives and programs to support the market for these systems.

11. What mechanisms, policies, and or incentives can be used to increase recovery and reuse of high-GWP HFCs from existing AC or HP systems, particularly in the residential sector?

EIA strongly recommends conducting a state-level inventory to determine quantities and sectoral breakdown of ODS and HFC refrigerant banks. Consider passing a mandate requiring high-GWP ODS and HFC refrigerant recovered from equipment to be collected and certified as reclaimed or destroyed in certain subsectors where technically and economically feasible. Expand requirements to use of reclaimed refrigerant in new and existing systems, making the California R4 program requirements apply to all new equipment containing refrigerants >150 GWP. Additionally, a ban on the sale of virgin high-GWP refrigerants for servicing, with an exception for reclaimed refrigerants, will incentivize recovery.

Extended producer responsibility (EPR) schemes have proven successful in many countries when implemented with strong reporting and verification requirements and robust incentives for each stakeholder group. One example is a deposit and refund scheme like that in Denmark, which implemented a tax on HFCs in 2001, covering imports and production of bulk gases and servicing quantities, and the import or manufacture of pre-charged equipment.[11] Companies that import or manufacture HFCs in Denmark must register with the Danish Tax and Customs service and pay based on the GWP and quantity of substance being manufactured or imported.[12] A voluntary deposit refund scheme was established in 1992, called the Danish Refrigeration Installers Environmental Scheme (KMO system). It includes a refund for service companies that return used refrigerants with the level of the refund depending on the purity of the recovered refrigerant.[13] Further EPR examples are outlined in Section 6, question 29.

12. What type of safety testing and safety standard updates are needed for the transition to ultra-low GWP (such as hydrocarbons) and/or no-GWP alternatives?

As described in our response to other questions, outdated safety standards are a barrier to broader use of A3 refrigerants that are ultra-low GWP and highly energy efficient, such as propane (R-290). The UL 60335-2-40 and ASHRAE-15 standards need to be updated to harmonize with the charge size and mitigation requirements in the IEC-60335-2-40 Edition 7 published in 2022, which allows up to 988 grams of R-290 (M3) in a direct system depending on requirements for minimum room size and for releasable charge. Self-contained and smaller capacity split AC and heat pump units have been commercialized to use R-290, which has enabled the agreement in Europe for a proposed revision of European F-gas Regulation.[14] This proposal prohibits refrigerants >150 GWP for self-contained and split air conditioning and heat pump equipment up to 12kW capacity beginning in 2027.

Section 6: Recovery and Reclamation

24. Despite venting prohibitions, refrigerant recovery rates are low, especially in the residential sector. What practices and processes can be put in place to ensure proper recovery?

California should create a mandatory EPR program to cover producers, distributors, and service technicians. By charging a fee to the producers and distributors, the programs can provide a bounty to incentivize service technicians to recover and return refrigerant to the distributor, who in turn receives rebates or incentives to ensure reclamation or destruction. The fee structure could include eco-benefits such that a price of CO_2e is fixed to the sale or distribution of bulk refrigerant (i.e. volume of refrigerant X GWP). To incentivize the collection of all fluorinated gases, bounties paid to technicians would be based only on the total volume returned to the distributor. In contrast to current operations, no fee could be charged to the technician for returning the refrigerant. This program would inherently support the growth of the reclaim market and reduce the need for virgin production of HFCs.

25. What incentives can be provided to technicians for investing their time and effort to properly recover HFCs from equipment, especially from the residential sector?

As long as AC technicians have no economic incentive to recover refrigerant, venting is highly likely to continue, even if it is prohibited by law or regulation. Clever rewards programs could help boost refrigerant reclamation rates. For example, rewarding technicians and technician companies that perform best with regards to end-of-life disposal may help encourage better practices. Workforce development funding may also be appropriate. Financial incentives designed to encourage technicians to recover instead of vent refrigerant could prove transformational in this sector and increase compliance with laws prohibiting refrigerant venting. In regions that have instituted deposit and refund or extended producer responsibility schemes on refrigerants, recovery rates are higher than in other regions, such as the U.S., where such financial incentives are generally absent. To be effective, such financial incentives must be significant enough to cover the incremental costs to AC companies, including: additional technician time and labor to collect refrigerant, incremental refrigerant recovery equipment costs, and fees associated with return of refrigerant for reclamation, if any.

26. What are some of the barriers that technicians face in transporting recovered HFCs to reclamation facilities and how can those barriers be addressed?

A major barrier to recovering a large quantity of used refrigerant gas is the inherent cost in person-hours to recover it and transport it to a suitable wholesaler (and, eventually, reclaimer or destroyer). In practice, it falls on service technicians to bear the brunt of recovery costs. A sufficiently large reward for recovery and transportation to reclamation facilities could go a very long way in making sure it happens. Without such a reward the economics are loaded against success; labor and transportation costs are high, while refrigerant costs (and thus value) have historically been quite low.[15]

A smart incentive could also be implemented that would reward the technicians and technician companies that have performed well on refrigerant recovery metrics reported to EPA under the

AIM Act. EPA, for example, collects data from technicians on rates of disposal for HFCs and ODSs, and also refrigerant delivered to reclaimers. EPA could evaluate all verified reports of disposed refrigerants and pay a cash reward to those entities returning the most recovered refrigerant, or those who most increase the amounts recovered (i.e., the most improved player). In addition to the monetary incentive, the rewards should be made public to advertise both the companies' performance and the benefits of best practices. The benefit of positive publicity would add to the appeal and reach of the incentives.

27. Are there emerging reclamation technologies that show promise in addressing potential barriers, such as reclaiming contaminated or blended HFCs, or cost-effective reclamation on a small scale?

We understand that existing fractional distillation technologies can reclaim a significant portion of the HFCs from contaminated or blended refrigerants and that promising new solutions using ionic solvents are being piloted and could become widely commercially available for existing reclaimers within a few years time that could allow a very high rate of recovery of components from the azeotropic blends and contaminated mixes.[16]

28. When is it appropriate to destroy HFCs?

As the HFC phase-down gets underway, destruction of HFCs may initially be limited, with a heavier focus on reclamation and reuse to service the installed base or other uses where the substance can be converted to another final product. However, ultimately, scaling up destruction will be essential to avoiding most emissions and must be closely considered and integrated into policy measures designed to tackle lifecycle refrigerant management. Policy interventions may be needed to make scaled up destruction economically sustainable as an alternative when reclamation is not practical. In the near term, there should be a strong focus on destruction of remaining ODSs, where a shrinking installed base of equipment is nearing retirement. Several destruction methods have been developed and approved for use during the phaseouts of ODSs, including incineration, destruction via other manufacturing processes such as cement making, submerged combustion, plasma, catalytic dehalogenation, superheated steam reactions, and more. The U.S. EPA has also evaluated and approved these techniques for ODSs and, more recently, HFCs. To be approved by the EPA, destruction efficiency must exceed 99.99 percent.[17] Only a subset of these can permissibly be used to destroy HFC-23, the most strongly bonded HFC molecule.

29. How can the State enable financial and/or regulatory mechanisms, like extended producer responsibility schemes or other fees, to improve the recovery and reclamation of HFC refrigerants? Are there successful examples from international markets that can be applied in California?

There are several successful examples of extended producer responsibility schemes from international markets.

Australia has developed a robust program for managing end-of-life emissions through an EPR scheme that includes a mandatory levy on ODS and HFC refrigerants accompanied by an industry supported program to incentivize recovery and destruction.[18] Refrigerant Reclaim Australia (RRA) is funded by a levy on sales of synthetic refrigerants to cover the costs of recovery and destruction.[19] The levy was initially voluntary but became mandatory beginning in 2004. Each kilogram of synthetic refrigerant imported and sold in Australia, whether as bulk or in pre-charged equipment, is subject to a levy of AUD$2 per kilogram which has been adjusted over time. All funds are held in Trust, and can only be expended for recovery, reclamation, and destruction of synthetic refrigerants. Excess funds are invested to pay for recovery and destruction well into the future (2030 and beyond). In coordination with contractors and distributors, RRA plays an active role in recovery and processing. RRA operates as a non-profit governed by a Board of Directors, composed of associations representing importers, distributors, contractors, and end-users. The program depends on broad industry support with participation from more than 1000 companies.[20]

Canada initiated a voluntary industry led program in 2000 called Refrigerant Management Canada (RMC).[21] RMC was designed to ensure proper lifecycle management of fluorinated refrigerants, through a six step process for collection, transportation, and storage and disposal of refrigerants.[22] In 2016 Environment Canada finalized the Pollution Prevention Plan for Halocarbons (P2 Plan),[23] making participation in RMC mandatory.[24] The P2 Plan also placed a levy on imported refrigerants of $1 per KG of HFCs and $4.50 per KG of HCFCs.[25] The funds collected from the levy are used to offset recovery and destruction costs. Canada also requires all HFCs to be imported in refillable containers, thereby effectively banning the use of disposable containers.[26]

Norway has had a tax on HFCs in place since 2003 covering the import and production of both bulk gases and pre-charged equipment.[27] The tax is supplemented by a reimbursement scheme applied to all HFCs delivered for destruction.[28] The refund system utilizes tax revenues to refund the amount paid in taxes by a license holder that imported or manufactured the HFCs.[29]

Section 7: Workforce Training

30. How can workforce training for technicians, particularly AC technicians, be improved to reduce leakage and increase HFC recovery?

Policies to require enhanced technician certification for handling refrigerants that include comprehensive training in proper recovery practices may be an effective approach to consider. Recovery best practices appear to be covered in some training materials; however, it is unclear how widespread use of those particular materials is.

31. How can technicians be held accountable for better refrigerant management?

There are areas in which more concerted efforts at enforcement of regulations would help mitigate emissions and improve refrigerant management. First, a system of penalties against one’s certification, such as driver license points, for infractions related to HVACR servicing could be an important deterrent of bad behavior. Enforcement against entities may also need to increase, for example, against online refrigerant retailers that sell to anyone rather than only certified technicians. Technicians can also be held accountable for better refrigerant management through mandatory training and periodic recertification to maintain their certification status.

32. What workforce training will be required for technicians to transition to ultralow GWP and/or no-GWP alternatives?

At the very minimum, technicians should be required to recertify once in the near future to become adept at use of flammable refrigerants. Ideally, training should be required every 1-2 years. Technicians currently only need to be certified once and are not required to undergo continuing education or training, and certifications are rarely, if ever, suspended or revoked.

33. How can the necessary training become more available and accessible for technicians?

Because training and certification have financial costs associated with them, private enterprises or government agencies need to provide no- or low-cost training materials and programs for technicians.

34. What is the role of the State, equipment manufacturers, and/or other industry stakeholders in providing and standardizing training and best practices, and how could this be enhanced?

In many cases, refrigerant regulations, industry best practices, and the characteristics of refrigerants have changed significantly since initial certification and will continue to advance into the future. In particular, the widespread adoption of climate-friendlier, ozone-safe refrigerants – many of which bear an ASHRAE 2L flammability rating – will necessitate greater care on the part of regulators and industry to ensure safe working conditions for technicians and, in turn, safe products for consumers. To keep up with these advancements, training materials must be refreshed to include the latest updates to safe handling practices and the potential environmental, health, and safety impacts of various refrigerants. Continuing education requirements for technicians to maintain their certification status would also be helpful to maintaining a skilled workforce, including additional online coursework, practicums, symposium attendance, and more. For example, every 1-2 years technicians could be asked to complete a short online course covering the latest updates in the sector and then take an online exam to maintain their certification status. It is also important to build servicing industry awareness on the environmental and climate impact of refrigerants as well as the important role that technicians play in mitigating refrigerant emissions.

Section 10: Overarching Questions

38. What factors around PFAS (per- and polyfluoroalkyl substances) should be considered as California transitions to ultra-low- and/or no-GWP alternatives?

There is cause for concern with the rising levels of Trifluoroacetic Acid (TFA) and other short-chain perfluoroalkyl acids, which have been found in rising concentrations in Arctic ice cores since 1990, which researchers link to the transition away from chlorofluorocarbons (CFCs) to HCFCs and HFCs, major precursor sources for TFA & PFPrA.[30] Recent studies of regional TFA distribution in both major metropolitan areas of Northern California and remote areas in Alaska show an increase of TFA concentrations by an average of 6-fold over the past 23 years. Researchers found highest concentrations in streams immediately downwind of the San Francisco Bay Area.[31]

Fluorocarbon refrigerants are a major source of trifluoroacetate.[32] TFA is a by-product of the breakdown of many HFCs and HFOs, substances that meet the definition of having one or more fully fluorinated carbon bonds. HFO-1234yf, the most widely used HFO for refrigerant uses, produces 92-100% yields of TFA. As PFAS precursor compounds, HFCs and HFOs undergo oxidation in the atmosphere to become perfluorocarboxylic acids (PFCA), which are TFA and PFPrA. These are then transported through the ocean or on marine aerosols. Research on TFA presence in the Arctic indicates that HFOs will lead to greater burdens of TFA close to source regions.[33]

The breadth of TFA's harmful impacts on humans and ecosystems continues to evolve with advancing research, although there is existing evidence of its toxicity and persistence in the environment, underscoring the need to restrict its sources. TFA is toxic to plants,[34] and the accumulation of short-chain PFCAs has been demonstrated in plants, including crops for human consumption.[35] Recent studies measuring human serum showed TFA concentrations higher than all other PFAS except for perfluorooctanoic acid and perfluorooctane sulfonic acid.[36] A 2023 study found positive correlations between TFA, perfluorobutanoic acid (PFBA, C4), and perfluoroheptanoic acid (PFHpA, C7) concentrations in dust or water and human serum, suggesting dust ingestion and/or drinking water consumption are exposure pathways and that these compounds are now abundant in the indoor environment.[37] TFA is harmful to aquatic organisms, and short-chain PFAS are more widely detected, more persistent, and more mobile in aquatic systems, posing potential risk for human and ecosystem health.[38] TFA has been shown to have negative impacts on liver function of rats at high enough concentrations.

Given the established risks associated with HFOs outlined above, we believe it is appropriate to limit their abundance, particularly given the market availability of non-fluorinated natural refrigerants with ultra-low global warming potentials that do not pose similar threats.

39. What types of ultra-low GWP and/or no-GWP pilot or demonstration projects from other regions or countries could be implemented in California? Please be specific as to types of equipment/applications.

California should consider R-290 for split AC systems. A study published by the Gesellschaft für Internationale Zusammenarbeit (GIZ), the German government agency for implementing international cooperation projects, found that there are minimal technical and cost issues related to the switch from HFCs to low-GWP refrigerants such as hydrocarbons in split air conditioners (ACs). The global adoption of R-290 instead of R-32 in split systems would avoid up to 0.12°C (0.22°F) of global warming.[39] The GIZ study analyzed historical data and contrasted it with the data of the intensive tests, and it was determined that the eco-efficient units with R-290 consume at least 40% less electrical energy compared to conventional reference units installed in buildings of the participating institutions.[40]

40. Are there additional control measures for refrigerant management, such as requirements for maintenance, servicing, and leak detection/repair, that could support California's climate goals?

Wider adoption of installation of automatic leak detection systems (ALDS) is believed to be a promising means to prevent and detect leaks. CARB may consider a lower system size threshold for requiring ALDS. Other additional control measures may include a requirement for servicing technicians to inform consumers regarding refrigerant leaks during servicing and options for leak repair, while making the "gas and go" practice of adding refrigerant without repairing a system leak illegal.

41. Do you have any suggestions for legislative, or regulatory changes that are needed to transition away from HFCs and to ultra-low GWP and/or no-GWP alternatives?

California should consider additional lower GWP limits for new equipment in targeted applications where alternative technologies are available. California should also continue to monitor updates safety standard and code updates and consider legislation to accelerate statewide adoption of updates standards and codes.

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