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Submitted through https://mpca.commentinput.com/?id=fGW4cdeEZ

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Minnesota Pollution Control Agency
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St. Paul, MN 55155

Dear Ms. Kurbondski,

The Alliance for Automotive Innovation[1] (Auto Innovators) appreciates the opportunity to provide input on the Minnesota Pollution Control Agency's (MPCA's) request for comment on planned new rules governing determinations of Currently Unavoidable Uses (CUUs) of PFAS in products. We understand that the main purpose of this rulemaking is to establish criteria and processes through which MPCA will make decisions on the uses of intentionally added PFAS that will qualify as CUUs in products sold, offered for sale, or distributed in Minnesota.

Auto Innovators represents the auto manufacturing sector, including automakers that produce and sell approximately 95% of the new light-duty vehicles in the United States, equipment suppliers, battery producers and semiconductor makers. Our mission is to work with policymakers to realize a future of cleaner, safer, and smarter personal transportation and to work together on policies that further these goals, increase U.S. competitiveness, and ensure sustainable, well-paying jobs for citizens throughout the country. In Minnesota, 5.26 million vehicles are registered. Tax revenue from the auto industry totals $1.4 billion and over 70% of consumers report using a private vehicle to get to and from work.[2]

Auto Innovators remains actively engaged in federal and state activities related to PFAS, including responding to all requests for comment from MPCA. Our comments and recommendations presented here are informed by the regulatory experiences in not only Minnesota but also, and not limited to, Maine, California, Washington, the EPA and

[1] From the manufacturers producing most vehicles sold in the U.S. to autonomous vehicle innovators to equipment suppliers, battery producers and semiconductor makers – Alliance for Automotive Innovation represents the full auto industry, a sector supporting 10 million American jobs and five percent of the economy. Active in Washington, D.C. and all 50 states, the association is committed to a cleaner, safer, and smarter personal transportation future. www.autosinnovate.org.
[2] https://www.autosinnovate.org/resources/insights/mn

the European Union. MPCA has issued a rule concept draft with fifteen questions, which we address later in our comments.

Product versus Component

On February 26, MPCA held a webinar on the proposed concepts for the CUU rulemaking. During the webinar, and in the materials posted, MPCA stated in several slides that the CUU application would be for a product.[3] The rule concept draft also indicates that CUUs applications will be at the product level, as evidenced by question eight of this comment form which states:

> **Question 8:** When considering the proposed definition of "product category", how broadly should the agency group product categories? *(Examples: "vehicles" versus "sedans, SUV's, vans, trucks, RV's" or "printers" versus "receipt printers, thermal printers, label printers, residential printers, commercial printers, etc.")*

This very clearly distinguishes products from their component parts.

However, in other conversations, MPCA has indicated that the determination for a CUU would be made at the product component level, indicating that this is related to the level of detail required in the reporting process.

Per the Minnesota statute,[4]

> **(r)** "Product" means an item manufactured, assembled, packaged, or otherwise prepared for sale to consumers, including but not limited to its product components, sold or distributed for personal, residential, commercial, or industrial use, including for use in making other products.
>
> **(s)** "Product component" means an identifiable component of a product, regardless of whether the manufacturer of the product is the manufacturer of the component.

Prior to any further significant proposals, MPCA **must determine whether the application will be filed at the product level or the product component level.** This distinction has significant bearing on how industries – particularly those with thousands of impacted components – will proceed forward. **Auto Innovators recommends that the application be filed at the product level.**

Auto Innovators anticipates that approximately 3500 components *per vehicle* contain at least one PFAS substance as defined under Minnesota's law, with many having two or more unique substances. If automakers are required to submit applications for each

[3] https://www.pca.state.mn.us/get-engaged/pfas-in-products-currently-unavoidable-use (see presentation on draft rule concepts)
[4] Minn. Stat. § 116.943

component in the vehicle, the state would receive thousands of applications per vehicle family, with estimates that each vehicle family contains 8000-10,000 unique combinations of component and substance that would require their own CUU.

Other potential consequences of using the vehicle component level include the potential for disruption to commerce in the state. As stated in the draft rule concept summary,

> **If an applicant submits a request for a CUU determination, but the commissioner has not yet issued a final CUU determination before January 1, 2032, the applicant will be required to stop selling their product in Minnesota until and unless the commissioner issues a positive CUU determination.[5]**

Under this framework, banning the sale of components of vehicles would create a *de facto* ban on the vehicle in its entirety. Further, if MPCA fails to timely issue CUU determinations for any component in the vehicle, the whole vehicle will be temporarily pulled from the market until the Commissioner issues the determination. Automakers do not sell vehicles without their lubricants, for example, they sell one complete product that encompasses thousands of parts and tens of thousands of components all which operate together to create a functioning product.

In the event of a CUU denial, automakers cannot substitute replacement components, substances, or parts without significant testing, validation, and in the case of a safety or emissions related component, recertification with the governing bodies. Fleet-wide planning for the certification process requires 5-10 years of lead time, not months or days.

Auto Innovators urges MPCA to clarify expectations about this discrepancy immediately. Even if automakers are required to break out applications to the component level, a denial or failure to timely approve a CUU application at the component level would impact sales at the vehicle level and likely disrupt legacy and service parts as well.

Responses to MPCA's Rule Concept Draft Questions

Question 5: Do you have any recommended changes or other considerations that you think the MPCA should take into account when defining the term "essential for health, safety, or the functioning of society"? *(Please review the proposed definitions in the rule concept document prior to answering)*

Auto Innovators appreciates MPCA's broad proposed definition of "essential for health, safety, or the functioning of society," which includes the addition of a reference to transportation, as requested by the Auto Innovators in previous comments. Personal

[5] https://www.pca.state.mn.us/sites/default/files/c-pfas-rule3-05.pdf

vehicles are key for transportation and getting around, and thus, the functioning of society. While the Minnesota proposed CUU application regulations are designed primarily with consumer use in mind, we encourage MPCA to consider that the light-duty passenger vehicle is also an integral part of the overall transportation ecosystem, which includes personal and commercial vehicles, aircrafts and maritime vessels, the Defense Industrial Base, as well as emergency vehicles and public transportation.

Many automotive technologies have multi-use applications; for example, advanced electronics (e.g., sensors, control systems) used in autonomous vehicles are also applicable in drones and military robotics. In 2023, the Department of War (DoW) undertook an analysis of critical PFAS uses for the national security of the United States, detailing its findings in a Report on Critical Per- and Polyfluoroalkyl Substance Uses.[6] In its summary of known mission-critical PFAS uses, the report includes the following conclusions applicable to motor vehicles and their parts, including replacement and service parts:

- Fluoropolymers and polyfluoroalkyl acids are widely used in lithium-ion battery applications, including electrolyte solutions, cathode binders, separator coatings, casing materials, and gaskets. The Department did not identify viable alternatives and acknowledged that fully eliminating PFAS from energy storage applications in the U.S. economy would likely require ten years or more.
- Fluoroelastomers are used in motor vehicles and other systems, including in fuel and fluid lines, hoses, O-rings, seals and gaskets, tapes, and cables and connectors. The Department did not identify viable alternatives and found that fluoroelastomers are critical to modern rubberized fuel lines, noting that alternatives are less resistant to embrittlement and degradation, have substantially shorter useful lives, and result in more frequent part replacement.
- PFAS are used in many advanced oils, greases, fluids, and lubricants used throughout the transportation, industrial, and space sectors. The Department found that earlier generations of these products approached, but did not match, the performance of PFAS additives, which have become increasingly prevalent in high-performance oils, greases, fluids, and lubricants over the past two decades.
- Hydrofluoro-Olefins (HFOs) are used in air-conditioning applications as next-generation refrigerant alternatives to HFCs. The Department did not identify viable non-PFAS substitutes and noted that known alternatives, such as hydrocarbons or ammonia, present flammability, toxicity, or high-pressure concerns.
- Polytetrafluoroethylene (PTFE) is used in cable jackets for printed circuit board connectors. The Department found that it is unknown whether suitable

[6] https://www.acq.osd.mil/eie/eer/ecc/pfas/docs/reports/Report-on-Critical-PFAS-Substance-Uses.pdf

replacement materials exist for all PTFE wire-jacket applications and noted that, despite its higher cost relative to some alternatives, PTFE is typically selected when no other suitable replacement materials are available.
- Fluorochemicals are used in electronic and dielectric fluids within electrical systems. The Department noted that industry and the Department of Defense have repeatedly evaluated alternatives for these applications and found that known substitutes either have high global warming potential or pose health or environmental risks.

Additionally, we encourage MPCA to consider the Cybersecurity & Infrastructure Security Agency's assignment of critical infrastructure[7] uses during the COVID-19 pandemic as relevant criteria for determining if an application is "essential for health, safety or the functioning of society."

- Workers supporting or enabling transportation and logistics functions, including truck drivers, bus drivers, dispatchers, maintenance and repair technicians, warehouse workers, third party logisticians, truck stop and rest area workers, driver training and education centers, Department of Motor Vehicle (DMV) workers, enrollment agents for federal transportation worker vetting programs, towing and recovery services, roadside assistance workers, intermodal transportation personnel, and workers that construct, maintain, rehabilitate, and inspect infrastructure, including those that require cross-jurisdiction travel.
- Workers supporting personal and commercial transportation services including taxis, delivery services, vehicle rental services, bicycle maintenance and car-sharing services, and transportation network providers.
- Vehicle repair, maintenance, and transportation equipment manufacturing and distribution facilities.
- Workers who support the construction and maintenance of electric vehicle charging stations.
- Workers who repair and maintain vehicles, aircraft, rail equipment, marine vessels, bicycles, and the equipment and infrastructure that enables operations that encompass movement of cargo and passengers.
- Workers critical to the manufacturing, distribution, sales, rental, leasing, repair, and maintenance of vehicles and other equipment (including electric vehicle charging stations) and the supply chains that enable these operations to facilitate continuity of travel-related operations for essential workers.

[7] U.S. Department of Homeland Security, Advisory Memorandum on Ensuring Essential Critical Infrastructure Workers' Ability to Work During the COVID-19 Response (Aug. 10, 2021) *available at* https://www.cisa.gov/sites/default/files/publications/essential_critical_infrastructure_workforce-guidance_v4.1_508.pdf

Motor vehicles and the replacement parts and operating materials to repair them are essential for health, safety, and the functioning of society. If Minnesota residents did not have access to functional vehicles to get to medical appointments, places of employment, and food and grocery stores, there would be far-reaching repercussions for quality of life and functioning of society for Minnesota residents. One estimate ranks Minnesota fifth nationally in average annual miles driven per driver, at approximately 17,887 miles, with residents outside major metropolitan areas traveling significantly greater distances to access essential medical and other services. As a result, personal vehicles are critical to transportation in Minnesota, and limited availability of personal transportation could jeopardize health and safety and disrupt the normal functioning of society

Question 6: Do you have any recommended changes or other considerations that you think the MPCA should take into account when defining the term "alternative"?

Alternative means a non-PFAS chemical, substance, material, manufacturing process change, non-chemical change, or other product that, if used in place of a PFAS or PFAS-containing product, would result in a functionally equivalent product.

AND

Question 7: Do you have any recommended changes or other considerations that you think the MPCA should take into account when defining the term "reasonably available"?

"Reasonably available" means that one or more alternatives to a PFAS can perform comparably to the PFAS being considered for replacement in a product or component and is currently available in sufficient quantity. PFAS alternatives that are in use in equivalent products or components are considered "reasonably available." Conditions of current reasonable availability may change over time as a result of new research or innovation.

Although these are distinct questions, we believe it is most effective to address the phrase "reasonably available alternatives" as a unified concept to ensure that the proposed definitions operate together as intended. Determining whether an alternative is reasonably available requires a multi-factor analysis, including consideration of: (a) whether potential substitutes are commercially available and economically feasible; (b) whether producers of such substitutes are domestic or foreign; (c) whether any proposed alternative has successfully completed EPA's new chemicals review program without restrictions that would limit availability or production volume; (d) whether the alternative has been validated for the specific application for which a CUU is requested; (e) whether the alternative has received approval from relevant federal agencies; and (f)

whether components manufactured using the alternative have been tested and demonstrated compliance with all applicable Federal Motor Vehicle Safety Standards

We refer MPCA to the definitions in California's Safer Consumer Products Safety Act that recognize the importance of defining alternatives:[8]

> "Economically feasible" means that an alternative product or replacement chemical does not significantly reduce the manufacturer's operating margin.
>
> "Functionally acceptable" means that an alternative product meets both of the following requirements:
>
> (A) The product complies with all applicable legal requirements; and
>
> (B) The product performs the functions of the original product sufficiently well that consumers can be reasonably anticipated to accept the product in the marketplace.
>
> "Technically feasible" means that the technical knowledge, equipment, materials, and other resources available in the marketplace are expected to be sufficient to develop and implement an alternative product or replacement chemical.

Therefore, we recommend expanding the definition that would further define the term "reasonably available alternative" and would clarify MPCA's expectations in terms of alternatives availability.

> ***"Reasonably available alternative"*** *refers to a substance or chemical that, when used in place of PFAS, results in a functionally equivalent product and that, when compared to a PFAS that it could replace, would reduce the potential for harm to human health or the environment, or has not been shown to pose the same or greater potential for harm to human health or the environment as that PFAS. To be reasonably available means a PFAS alternative which is readily available in sufficient quantity and at a comparable cost to the PFAS it is intended to replace and functions as well as or better than PFAS in a specific application of PFAS in a product or product component and enables the product to continue to comply with all applicable legal requirements. Alternatives include reformulated versions of products, including versions reformulated by removal or addition of one or more chemicals or substances, that result in the reduction or removal of intentionally added PFAS from the product. Alternatives also include changes to the manufacturing process that result in the reduction or removal of PFAS from a product.*

[8] 22 Cal. Code Regs. § 69501.1.

PFAS alternatives that are in use in equivalent products or components are considered "reasonably available."

Auto Innovators recommends striking this language from the definition as it will have significant consequences for manufacturers of complex durable goods. For example, we use a variety of lubricants across a multitude of parts and functions in the vehicle; PFPE lubricants are used where extreme temperature, chemical inertness, or "lubed-for-life" durability is required whereas PTFE is used as a solid lubricant in application such as electric connectors, switches, seat motors, and actuators. These lubricants are performance-based inputs to the overall function of the specific vehicle part and cannot be compared or assessed in relation to lubricants used in a different part of the vehicle, or in non-automotive uses such as medical devices. The availability of PFAS-free alternatives in one industry should not be satisfactory for the denial of a CUU application where MPCA believes that alternative could be used across a variety of products.

Further, if MPCA wishes to challenge a manufacturer's assessment that a reasonably available alternative is not available, the Agency should be required to submit a comparable amount of technical information to the manufacturer explaining why the Agency believes that the alternative should be used, what "equivalent products" it is available in, and data supporting the Agency's belief that it would result in a "functionally equivalent product."

MPCA will be reviewing hundreds of thousands of applications from the auto industry alone, representing an expansive sample of products, and without specialized technical knowledge of each individual industry and product, manufacturers could be subject to an onslaught of proposed alternatives that lack any supporting evidence. This will not only overwhelm the MPCA's process for approving or denying applications, but it will most certainly impact the two-year timeline if the process must stop every time there is a similar but not necessarily functionally equivalent alternative.

Question 10: What safety or other standards require the use of PFAS in a product?

Automakers must design and manufacture vehicles to comply with a wide range of safety standards that address the performance, design, and integrity of the vehicle as a whole and its individual systems. In the United States, these requirements are primarily established through the Federal Motor Vehicle Safety Standards (FMVSS), issued by the National Highway Traffic Safety Administration under the authority of the National Traffic and Motor Vehicle Safety Act.[9] These standards cover numerous aspects of vehicle safety, including crashworthiness (how well a vehicle protects occupants during a crash), crash avoidance technologies (such as braking and stability control, structural

[9] https://www.nhtsa.gov/laws-regulations

integrity, lighting and visibility), occupant protection systems (such as seat belts and airbags), and the safe performance of components such as tires, glazing, and fuel systems. Automakers must certify that each vehicle model complies with all applicable regulatory requirements prior to sale, a process that necessitates extensive engineering design, testing, and validation throughout the vehicle development lifecycle. In addition to federal requirements, manufacturers also follow technical standards developed by organizations such as the Society for Automotive Engineering and International Organization for Standardization to guide best practices in vehicle design, performance testing, and safety engineering.

PFAS are used in automotive applications due to their temperature resistance, low flammability, flexibility, fluid resistance, and lightweight properties. Their water-resistant characteristics are critical for lubricants and greases used in vehicle suspension systems. PFAS's heat resistance enables flexible fuel lines to safely deliver gasoline to hot engines without increasing fire risk. Similarly, heat resistance—combined with protection against water intrusion—helps maintain the integrity of wire looms and sensors that support advanced vehicle safety systems. Brake fluids are hygroscopic and naturally absorb moisture from the atmosphere; PFAS coatings on brake lines help preserve brake system performance over extended periods. Emissions reductions also depend in part on the chemical and thermal resistance PFAS provide to gaskets and O-rings, which maintain tight engine seals. PFAS coatings on cylinder heads and hoses further improve fuel efficiency and reduce fugitive gasoline vapor emissions.

In addition to safety requirements, motor vehicles in the United States are subject to several environmental regulations that govern emissions, fuel efficiency, and certain vehicle systems. The United States Environmental Protection Agency regulates emissions of criteria pollutants from vehicles under the authority of the Clean Air Act.[10] The State of California has its own criteria emission regulations as well as greenhouse gas emission standards.[11] Fuel economy requirements are established through the Corporate Average Fuel Economy (CAFE) program[12] administered by the National Highway Traffic Safety Administration (NHTSA), which requires manufacturers to meet fleet-wide fuel efficiency targets across the vehicles they sell each model year. EPA regulations also address refrigerants used in vehicle air-conditioning systems through the Significant New Alternatives Policy (SNAP) program, which evaluates and approves alternatives to ozone-depleting substances and certain high-global-warming-potential chemicals. Together, these programs regulate key aspects of vehicle environmental performance by setting limits on emissions, encouraging improvements in fuel

[10] https://www.epa.gov/ghgreporting
[11] *See* 13 Cal. Code Reg. §§ 1961.2 et. seq.
[12] https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy

efficiency, and guiding the transition to safer and more environmentally preferable technologies used in vehicle systems.

The SNAP program provides a good example of a federal program that evaluates the safety and efficacy of certain chemicals. Under Title VI of the Clean Air Act, the SNAP program identifies and evaluates substitutes in uses that have historically used ozone-depleting substances, such as refrigerants and air conditioning. The SNAP framework evaluates the overall risk to human health and the environment of existing and new substances, publishes lists of acceptable and unacceptable substitutes, promotes the use of acceptable substitutes, and provides the public with information and the potential impact of substitute substances.[13]

Critically, determinations regarding alternative availability must be made on an end-use- and sector-specific basis, as each application presents distinct technical, safety, and regulatory requirements. Motor vehicle air-conditioning (MVAC) systems—used in cars, trucks, buses, aircraft, trains, and other transportation modes—are fundamentally different from stationary refrigeration systems due to their operation under widely varying conditions, higher accident risk profiles, and the mobile location of the system. Federal regulations under the Clean Air Act do not merely govern the allowable use of refrigerants; they also impose binding requirements related to technician certification, servicing practices, refrigerant recovery and reuse, and safe disposal.

Vehicle refrigerants do not permit “drop-in” substitution. Each SNAP-approved refrigerant must be used with a unique set of fittings specifically designed to prevent the mixing of incompatible refrigerants. Accordingly, even where so-called “PFAS-free” refrigerants exist, consumers and manufacturers cannot simply substitute or retrofit alternative refrigerants into existing vehicle systems. Any suggestion to the contrary disregards the technical and regulatory realities governing MVAC systems.

While these federal standards may not explicitly mandate the use of PFAS in specific products, the absence of viable, compliant alternatives produces a de facto compliance requirement. As explained throughout these comments, alternatives that may appear suitable at the component level frequently do not translate across industries or uses. Substituting a material or substance can alter the performance, safety, and durability of the top-level assembly or the overall product, and where that product is subject to federal regulatory requirements, such substitutions risk noncompliance. Regulatory frameworks must therefore acknowledge that theoretical alternatives are not equivalent to functionally, technically, and legally viable substitutes.

[13] https://www.epa.gov/snap/snap-program-overview

Although none of these standards explicitly dictates the use of PFAS in a product, in the absence of viable alternatives, the practical effect is a *de facto* compliance requirement. As discussed throughout these comments, alternatives to individual product components do not necessarily translate across industries or uses. The replacement of a substance or component may impact the performance of the top-level assembly or the overall product generally, which if subject to federal requirements, could jeopardize compliance with those regulations.

Question 11: The agency is seeking feedback on the potential that the initial positive CUU determination duration for existing products will expire eight years from the date of issuance regardless of product category. This is intended to stagger renewal deadlines and ease the administrative burden of processing renewals.

Autos as a product have additional peculiarities that create some confusion for the CUU process. Autos are one of the only products that are annually released with a new model year, which distinguishes changes in design, technology, and engine options. While consumers perceive this as part of vehicle marketing, model years are also relevant to regulatory requirements from federal agencies such as the EPA and NHTSA. Model years are not required to align with calendar years,[14] but are treated as the same regulatory cohort when agencies propose and finalize regulations.[15]

The rule concept draft distinguishes between "novel products" and "existing products." Novel products are defined as "products that are not yet sold, offered for sale, or distributed for sale in the state as of January 1, 2030."[16] The rule concept draft also states that the first round of CUU applications for existing products will be in effect from January 1, 2032 through 2040, while novel CUU approvals will expire five years from the date of issuance.

Although the definitions of novel and existing products may apply to some industries, these definitions do not provide automakers with the required clarity to apply for a CUU or determine how the timeline will be applied to the different vehicles and their component parts.

Because vehicles are manufactured on a model-year basis and routinely undergo annual redesigns or engineering updates, it is unclear how the expiration of an initial positive CUU determination would operate in the automotive context. In particular,

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[14] 40 CFR 85.2302 *Definition of model year*. Model year means the manufacturer's annual production period (as determined under § 85.2304) which includes January 1 of such calendar year, provided, that if the manufacturer has no annual production period, the term "model year" shall mean the calendar year.

[15] *See, e.g.,* EPA Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks, *available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and;* Corporate Average Fuel Economy, National Highway Traffic Safety Administration, *available at https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy*.

[16] https://www.pca.state.mn.us/sites/default/files/c-pfas-rule3-05.pdf

MPCA has not explained how it intends to apply the expiration provisions to products that evolve through regular model-year updates, such as passenger vehicles. If a CUU determination is granted for a vehicle component or system, it is critical to understand whether that determination would continue to apply to subsequent model-year versions that incorporate routine design, calibration, or engineering changes, or whether each model-year update would be treated as a new or "novel" product requiring a separate CUU determination. Absent clear guidance, manufacturers face substantial uncertainty as to whether ordinary, iterative updates—many of which are required for safety, emissions, or performance compliance—would trigger repeated CUU reviews. Explicit clarification regarding how MPCA intends to apply the eight-year and five-year expiration timelines to products subject to established annual redesign cycles is necessary to allow manufacturers to effectively plan for compliance, certification, and long-term product development.

Auto Innovators also reiterates that the magnitude of what MPCA has proposed would grow exponentially if automakers were required to treat each vehicle redesign (at the component, vehicle, or any level in between) as a "novel product." It would also inherently undermine the initial CUU process beginning on January 1, 2030, because the application would still apply to model year 2032/2033 vehicles which would already be in production but not yet for sale in the state. Auto Innovators urges MPCA to clearly define that a product that undergoes an annual or regular redesign cycle as part of the product's regular lifecycle be classified as an "existing product."

Auto Innovators further encourages MPCA to allow CUU determinations to last for a lengthy timeframe. Particularly for complex goods manufacturers like automakers, our products have long design and production timelines as well as very many parts and PFAS uses, and it is not sensible for us to spend substantial amounts of time assembling a CUU application only to have to turn around and do the same thing again only a few years later. In other jurisdictions, phase-out periods are upwards of 10-15 years to allow for a full product redesign cycle as well as the adequate amount of time for safety testing and certification.

Question 13: What are the potential ongoing costs to society if the commissioner issues a positive currently unavoidable use determination for the continued use of PFAS within a product or product category? *(For example: environmental, human health, or remediation costs)*

Auto Innovators understands the intent of this question but points MPCA to understanding the potential costs to society of prematurely banning substances used to perform high impact safety functions in complex durable products such as vehicles. PFAS perform critical functions for vehicles, and previous experience demonstrates that

forcing chemical change too quickly can result in the proliferation of regrettable substitutions.[17]

Regrettable substitutions in substances occur when a substance is replaced with another substance that has unknown or different hazards, especially those which have not been widely tested.[18] A review of the literature on regrettable substitutions identified the following ways that alternatives assessments failed to avoid regrettable substitutions:

- Lack of hazard data;
- Trading off one end point or population for another;
- Failure to consider functional use;
- Failure to consider life-cycle concerns; and
- Failure to consider exposure.

Application of the unavoidable use definition should not lead to substitution with less safe, less sustainable, or less durable materials. These trade-offs may force trade-offs in terms of long-term reliability, safety, emissions, performance, as well as compromising the safety of our products.

We encourage MPCA to also look at these regulatory requirements in relation to other environmental goals the state has set. PFAS are critical substances for the electric vehicle industry. For example, polyvinylidene fluoride (PVDF), a type of PFAS, serves as a binder for electrode active materials in lithium-ion batteries. The battery cells containing the PVDF are sealed, and the cells are additionally protected by an envelope when integrated into the product, so there is essentially no exposure to the end user that may lead to health risk. In light of MPCA's plan to reduce transportation emissions,[19] an exemption for PFAS uses in vehicles will be critical to allowing the continued sale and maintenance of electric vehicles after 2032.

Questions 14-18

Questions 14-18 request information on the administrative cost of the CUU process, including the alternatives assessment. The information below is assuming that CUU applications must be submitted at the product component level as opposed to the product level (i.e., for the entire vehicle), using information from the California Safer Consumer Products Alternative Analysis program as well as the guidance from the MPCA rule concept draft.

Financial Impact of Applications at the Product Component Level

[17] https://pmc.ncbi.nlm.nih.gov/articles/PMC9432817/
[18] https://pmc.ncbi.nlm.nih.gov/articles/PMC9432817/
[19] https://www.pca.state.mn.us/air-water-land-climate/reducing-transportation-emissions

Using the reporting rule as guidance, Auto Innovators estimates that each vehicle has approximately 3500 components that contain one or more reportable PFAS substances as defined in the legislation. Because most of these components include two or more substances, the reporting estimate ranges from 8000-10,000 unique rows of data per vehicle. Although automakers vary in the number of vehicle families manufactured, we estimate that the lower end is about 8 vehicle families and the higher end is about 22. There are 24 automakers represented by Auto Innovators.

California's Safer Consumer Products program estimates that the cost of conducting a single alternatives assessment ranges from approximately $120,000 to $250,000.[20] That estimate reflects the cost of analyzing a single product alternative and excludes elements specific to California's program that would not apply under Minnesota's proposal. It also does not account for additional costs that Minnesota has not yet quantified or published, including application fees and the internal staff resources required to compile and submit CUU applications.

Assuming these estimates are directionally accurate under the draft rule concept, and assuming Minnesota would require applications at the component level, the cumulative cost to a single automaker could reach as much as $55 billion solely to perform alternatives analyses. That figure does not include implementation, redesign, testing, certification, or supply-chain costs, nor does it include additional costs borne from the CUU application itself. Moreover, because guidance on the scope of products subject to CUU determinations and the applicable timelines remains unclear, these costs may not be one-time in nature. Instead, manufacturers could face recurring costs every five to eight years based on the proposed expiration and renewal framework. Absent clearer boundaries and greater regulatory certainty, the proposed program risks imposing extraordinary and repeated compliance costs that are disconnected from technical feasibility and manufacturing realities.

Table 1. Estimates of cost to alternative analysis

Category	Low End	Average	High End
Applications per Vehicle Family	8,000	9,000	10,000
Vehicle Families per OEM	8	15	22
Cost for Alternative Analysis	$120,000	$185,000	$250,000
Total Manufacturer Cost	**$7.68 billion**	**$25 billion**	**$55 billion**

[20] *See e.g.,* https://dtsc.ca.gov/wp-content/uploads/sites/31/2021/09/PFAS-Treatments_Attachment-to-Form-399_accessible-1.pdf; https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/07/Form-399-Attachment_Nail-Products-with-Toluene.pdf

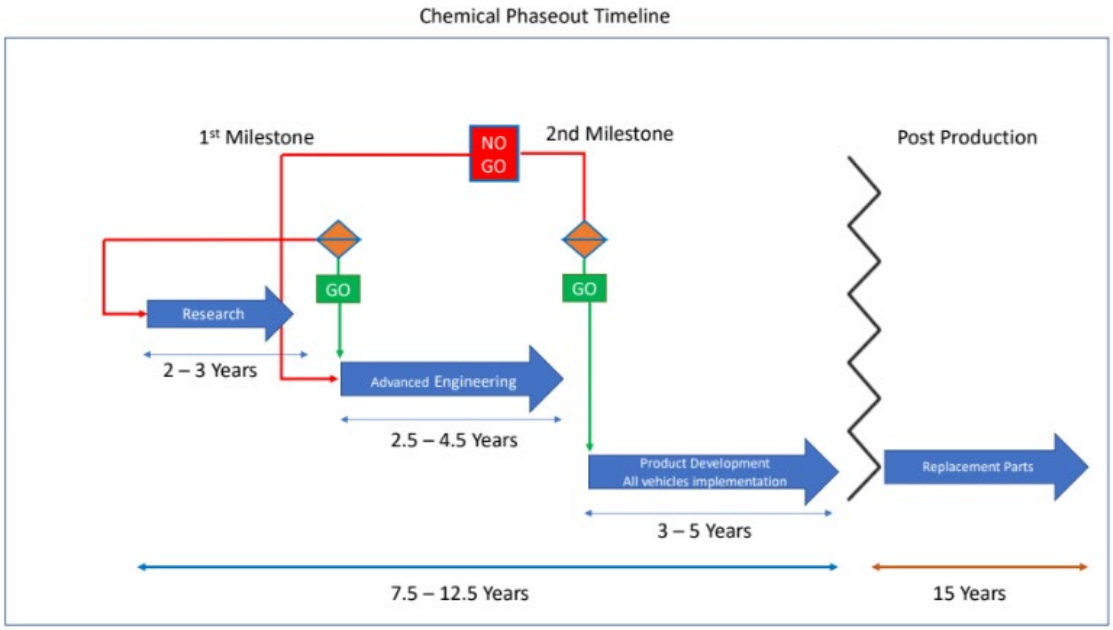
MPCA specifically requests estimates of the staff hours required to compile a CUU application. If applications are required at the component level, our response to this question, as written, would be that each application would require **500 hours or more** of staff time to review. While MPCA indicates that estimates need not be overly granular, it is important to note that—based on the cost and workload assumptions discussed above—staff review time per vehicle family would be on the order of **9,000 hours**. As noted previously, the total number of applications is expected to be in the hundreds of thousands, with each application potentially consisting of hundreds of pages, depending on the component and the range of potential alternatives evaluated. The volume, complexity, and technical specificity of these submissions underscore the magnitude of the administrative burden associated with component-level CUU review and raise serious questions about the feasibility of timely and consistent decision-making under the proposed framework.

Vehicle Design Timeline

Replacing a chemical in an automotive part means extensive testing of alternatives, redesigning a vehicle, and reworking the assembly line and facility. Vehicle models are on redesign cycles that are approximately five years long,[21] with the cost of a major redesign estimated at $2.5 billion.[22] Replacement chemicals cannot just be “dropped in,” and any redesign must be in compliance with federal regulations such as NHTSA’s Federal Motor Vehicle Safety Standards (FMVSS) and CAFE fuel economy program, and EPA and California’s criteria emission and greenhouse gas standards.

Alternatives for any chemical must be considered in the context of the performance requirements for vehicles and their parts, particularly how any alternative for a PFAS works in combination with the many other substances being used for a given part and/or application. This is not to say that automakers are not pursuing the identification of alternatives, but rather, it is a challenging task.

[21] https://www.kearney.com/industry/automotive/article/speeding-up-the-automotive-product-development-process (development time for a complete platform still exceeds 4.5 years for premium OEMs)
[22] https://www.rti.org/sites/default/files/resources/US_Automotive.pdf



Legacy Parts

Legacy spare, service, and replacement parts (hereinafter, legacy parts) are a crucial element of vehicle life which are wholly unaccounted for in this proposal. This CUU proposal demonstrates a fundamental misunderstanding of the lifecycle of complex products because it is predicated on the idea that all products will efficiently move towards non-PFAS alternatives in a swift timeframe. However, three aspects of the legacy parts ecosystem are in direct conflict with this assumption. First, although vehicles are released each new model year on an annual basis, some parts carry over through vehicle design. Second, “on the shelf” vehicle spare parts, which may not be “used” by the time they enter the stream of commerce, will contain prohibited chemicals throughout their useful life span.

Each major automaker carries over 250,000 active replacement parts, with roughly 20,000 new service parts added annually. The basic economic business model for replacement parts is that manufacturers put a marginal supply of these parts in stock while a vehicle is in product. Automakers support a “repair as produced” concept, meaning the service parts should use the materials that were acceptable when the vehicle was designed, certified, and warranted, even if manufactured after the effective date of a restriction on use of a chemical contained in those parts. Since the average age of vehicles on the road today is more than 12 years old, replacement parts must be available for many years so that vehicles already purchased by consumers can continue to be maintained. If a replacement part is not available on the shelf, suppliers continue to produce replacement parts using the same materials, production processes, and

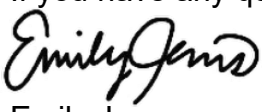
engineering specifications as for the original vehicle. This is to guarantee the safety and performance of the part.

For initial CUU determinations – **it is critical that MPCA also include parts and equipment needed to repair and maintain those vehicles in any CUU exemption granted for motor vehicles**. Parts and service equipment keep vehicles in service and operating efficiently and safely. Federal definitions[23] include all parts as part of the vehicle lifespan, and accordingly MPCA should regulate these as a unit and treated as such in considering a CUU exemption. This must also include parts that may need to be manufactured to repair an existing vehicle.

Conclusion

We appreciate the opportunity to comment on the rule concept draft presented by MPCA. Auto Innovators remains deeply concerned that the draft rule concept as designed does not account for many of the unique needs of complex durable and highly regulated goods such as the vehicle. Prior to going forward, we request substantial clarification from MPCA on key terms and look forward to continuing to engage.

If you have any questions, please contact me at ejones@autosinnovate.org.



Emily Jones
Director, Energy & Environment Policy
Alliance for Automotive Innovation

[23] *See* 49 U.S.C. §30102(a)(8)
(8) "motor vehicle equipment" means—
(A) any system, part, or component of a motor vehicle as originally manufactured;
(B) any similar part or component manufactured or sold for replacement or improvement of a system, part, or component, or as an accessory or addition to a motor vehicle;