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California Air Resources Board  
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Subject: Comments to Advanced Clean Cars II Amendments - November 2023 Workshop

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Jaguar Land Rover (JLR) welcomes the opportunity to comment on the Advanced Clean Cars II (ACC II) Amendments - November Workshop. JLR thanks the California Air Resources Board (CARB) for their efforts to inform stakeholders of potential amendments to the regulation.

JLR is a UK-based niche manufacturer of specialist premium passenger cars and luxury sport-utility vehicles. In the USA, through our 211 franchised retail outlets, Jaguar Land Rover North America, LLC (JLRNA) sells vehicles from our class-leading, modern luxury Range Rover, Discovery, Defender, and Jaguar brands. In 2023<sup>1</sup>, our sales of just under 82,000 units accounted for approximately 0.5% of new motor vehicles registered in the US.

Our Reimagine strategy was published in February 2021. This is where we communicated the ambitious, electric future of our fleet. Beginning with our iconic Range Rover brand, the new all-electric model will launch at the end of 2024, closely followed by the rollout of an additional five pure-electric models across the Range Rover, Discovery, and Defender brands by 2026. We announced from 2025 that our Jaguar brand will only offer fully electric variants. By the end of the decade, every model will be available with a fully electric version.

JLR strongly supports efforts to reduce greenhouse gas (GHG) emissions for passenger cars and light trucks, alongside improving fuel economy and advancing the transition to zero emission vehicles (ZEVs<sup>2</sup>). We are investing £15 billion over the next five years to support an electrified future, details of which can be found in the Appendix.

We support the Alliance for Automotive Innovation (Auto Innovators) comments. In this submission, we comment specifically on the challenges that JLR could face under the potential amendments to the GHG standards. To support the transition to a zero-emission future, JLR would welcome CARB's consideration of the following comments:

### **Dual Regulation with both GHG Standards and the ZEV Mandate**

JLR strongly disagrees with the need to develop new GHG standards beyond 2025MY while the comprehensive ZEV mandate regulation is in place. Either of these will provide a route towards CARB's goals to reduce GHG emissions by 40% by 2030, by 85% and with carbon neutrality achieved in 2045. Trying to regulate both metrics drives unnecessary complexity and cost.

JLR acknowledges the great progress that has been made in part due to tailpipe GHG standards. JLR embarked on an extensive journey to reduce its fleet average CO<sub>2</sub>, which was highlighted in the recently published 2023 EPA Automotive Trends Report:

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<sup>1</sup>Year refers to calendar year unless otherwise specified.

<sup>2</sup> Zero emission vehicles (ZEVs) refer to battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs).

To better illustrate certain elements in this NPRM response we have included items that are commercially sensitive. To aid government these are contained within brackets and highlighted in bold as demonstrated below:

**[Confidential Business Information]**<sup>CBI</sup>.

*“Compared to the first year of the program, Jaguar Land Rover leads manufacturers in the overall reduction of 2-cycle CO<sub>2</sub> emissions (99 g/mi)<sup>3</sup>”.*

JLR has accomplished this by focusing on improving all aspects of its fleet CO<sub>2</sub>: improving the traditional internal combustion engine fleet, investing in electrification and low carbon technologies.

In previous years, it could have been possible to meet a GHG target by improving the efficiency of the internal combustion engine. However, for future years, it will only be possible to meet these targets with increased ZEV sales, and with the finalization of ACC II ZEV mandate in August 2022, requiring 68% ZEV in 2030 and 100% by 2035, setting a GHG target on top of a ZEV target is redundant.

Dual regulation provides an additional unnecessary burden to car manufacturers and means they will have to over comply with one target to remain compliant against the other, depending on their sales fleet mix. A car manufacturer with a greater range of products could meet a ZEV mandate target with the same fleet used to meet the GHG target. For a niche car manufacturer like JLR, with a limited range of products, the same levers to compliance do not exist. This overcompliance has a cost and burden associated with it.

**JLR encourages CARB to re-evaluate whether additional GHG standards beyond 2025MY are required.** Increased ZEV sales will help to achieve both goals of reducing emissions and increased ZEV adoption. We invite CARB to consider the compound effect of both targets upon industry and evaluate ways to reduce the burden on manufacturers.

### **Alignment and Coordination with EPA**

It must be highlighted that within the US alone, manufacturers are subject to four CO<sub>2</sub>-related regulations (federal CAFE & GHG, alongside California & Section 177 states ACC and GHG), mandated by three different agencies (NHTSA, EPA & CARB) with sharp penalties for non-compliance which could quickly mount up if standards are misaligned. With the aim of these regulations to reduce emissions, improve vehicle efficiency and increase the uptake of low and zero emission vehicles, manufacturers are challenged to produce a vehicle fleet that complies with all these standards.

EPA’s proposed GHG standards are significantly more aggressive than the Biden Executive Order (E.O. 14037<sup>4</sup>) targets, with a total federal fleet projected BEV rate of 60% in 2030MY to achieve the new standards, which would require exceptional levels of coordination and investment across industry and government to achieve. If CARB were to set targets above and beyond EPA, it could result in standards that are not economically feasible. Mandating targets that could result in significant levels of non-compliance across industry, where car makers are forced in significant numbers into a fine-paying situation, is detrimental to both industry and the goals of the agency. Diverting this amount of investment from improvements to vehicles would cause a reduction in benefits to both consumers and the environment.

**If CARB decides to proceed with developing new GHG standards beyond 2025MY, we urge CARB to align with the EPA federal regulation, to achieve these shared goals.** Aligning with

<sup>3</sup> EPA Trends Report 2023- <https://www.epa.gov/system/files/documents/2023-12/420r23033.pdf>

<sup>4</sup> Executive Order 14037 of August 5, 2021 - Federal Register: Strengthening American Leadership in Clean Cars and Trucks - <https://www.federalregister.gov/executive-order/14037>

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EPA where possible would provide regulatory certainty to industry and reduce complexity for car manufacturers. Reducing the chance of penalties due to misalignment, alongside removal of duplication of testing and reporting for overlapping regulations, ensures car makers' budgets can continue to fund the ZEV transition and reduce the overall emissions of the fleet.

**Upstream Emissions**

JLR believes that only direct vehicle tailpipe emissions for a vehicle should be included in the calculation of the CO<sub>2</sub> status. In the case of battery electric vehicles (BEVs), it is entirely true that they emit zero tailpipe CO<sub>2</sub> emissions, so they should be treated in the regulation as such.

California already has targets to decarbonize its electricity grid, with a 100% renewable energy goal by 2045<sup>5</sup>. Senate Bill 1020 (2022) established interim targets of 90% clean electricity by 2035 and 95% by 2040. To include upstream emissions in the greenhouse gas regulation for ZEVs is unnecessary as it is targeting emissions that will reduce over time anyway, but they are also emissions that car makers have no direct impact on.

Considering the above, as well as the ACC II program, which lays out California's legally binding path to achieving 100% ZEV sales in 2035, JLR is of the opinion that accounting for upstream emissions for ZEVs in the greenhouse gas regulation is not needed. Most of the transportation sector will have zero emissions at the tailpipe regardless and will be powered by a decarbonized grid from renewable sources.

**JLR opposes the continued inclusion of upstream emissions. To further align with EPA, we would strongly support their removal from ZEVs in the regulation.**

**ICE-CO<sub>2</sub> Target – Anti-Backsliding Mechanism**

Whilst we understand the intention behind an anti-backsliding mechanism, we do not believe it is a practical or necessary solution to regulating greenhouse gas emissions. **[REDACTED]**<sup>CBI</sup>

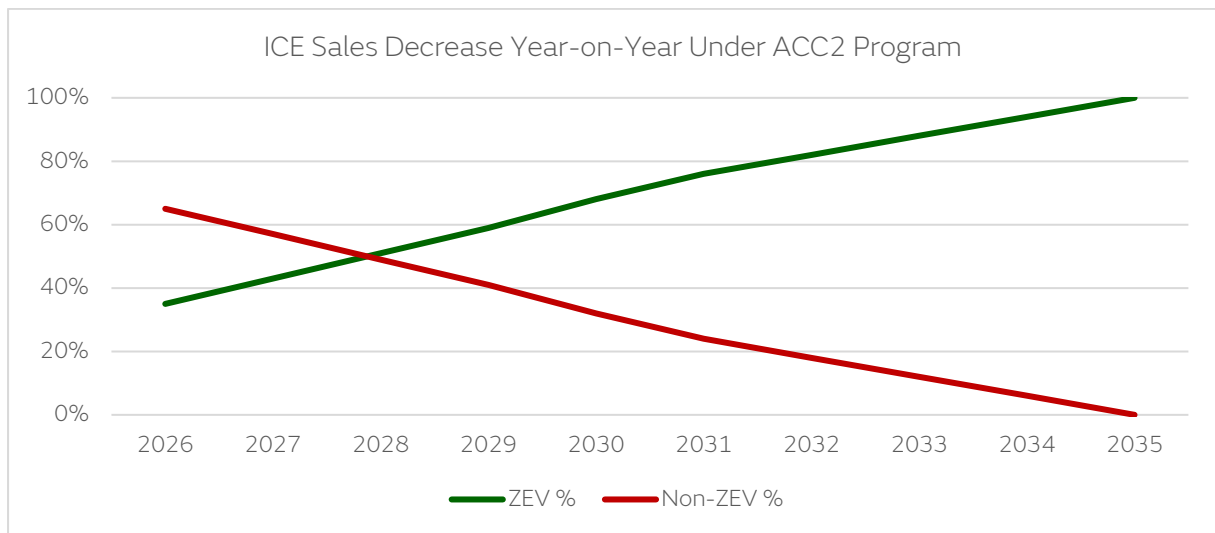


Figure 1

<sup>5</sup> SB-1020 Clean Energy, Jobs, and Affordability Act of 2022 - [https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=202120220SB1020](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB1020)

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Regulating ICE CO<sub>2</sub> with a fleet average approach has many challenges. Car makers have different electrification timelines – for JLR, in the next few years, we will simplify our fleet, going from nine vehicle architectures to three, two of which will be fully electric, as demonstrated in Figure 2. Our flexible MLA platform and fully electric EMA platform will produce our Range Rover, Defender and Discovery vehicles while our new JEA platform will make our fully electric Jaguar vehicles.

MLA	EMA	JEA
<b>Modular Longitudinal Architecture</b>	<b>Electrified Modular Architecture</b>	<b>Jaguar Electrified Architecture</b>
Electrified ICE & BEV propulsion flexibility	BEV only architecture	BEV only architecture
ICE from 2022   BEV from 2024	From 2025	From 2025
<b>RANGE ROVER</b>	<b>DEFENDER</b>	<b>DISCOVERY</b>
		<b>JAGUAR</b>

Figure 2

[Figure 3 - REDACTED]<sup>CB1</sup>

[REDACTED]<sup>CB1</sup>

[Figure 4 - REDACTED]<sup>CB1</sup>

For a non-ZEV fleet CO<sub>2</sub> target in an agreed reference year, a car maker should be able to continue to meet this target year-on-year if they are selling the same or comparable ICE vehicles. [REDACTED]<sup>CB1</sup>

The introduction of an ICE-only target could result in reduced investment into the BEV transition when it is needed most. It is not economically feasible for automakers to invest in both the electrification of their fleets and improvements in the efficiency of internal combustion engines. At present, there are increasingly limited opportunities with regards to technologies that will meet the incredibly challenging standards set.

This was acknowledged by NHTSA in their recent draft Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032:

*“It is a testament to manufacturer efforts and the success of this program, that we are beginning to reach the limits of fuel economy improvements that can be considered.”<sup>6</sup>*

The impact of this is that investment by car manufacturers has diverted from improving conventional ICE vehicles to BEVs.

<sup>6</sup>Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035 - <https://www.federalregister.gov/documents/2023/08/17/2023-16515/corporate-average-fuel-economy-standards-for-passenger-cars-and-light-trucks-for-model-years>

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**JLR does not support the introduction of an ICE-only fleet target.** We have additional concerns about the complexities involved in implementing an ICE-only GHG target, and JLR would welcome the opportunity to continue its constructive dialogue with CARB to provide further details behind our position.

### **PHEVs**

**JLR is concerned about any changes to the certified PHEV CO<sub>2</sub> value, namely through the adjustment of the utility factor, and what impact this will have on fleet average CO<sub>2</sub> compliance. We recommend that CARB work with EPA on this issue to find a balanced solution that suits both agencies and industry.** JLR welcomes the opportunity to discuss the treatment of PHEVs in the regulation further with CARB and EPA. As the final rule for the federal regulation has not yet been released, it is too early to comment further on this topic.

### **Conclusion**

JLR supports the aims of the agency to further grow the ZEV market, reduce GHG emissions, and achieve carbon neutrality by 2045.

We appreciate your consideration of the following.

- JLR encourages CARB to re-evaluate whether additional GHG standards beyond 2025MY are required.
- If CARB decides to proceed with developing new GHG standards beyond 2025MY, we urge CARB to align with the EPA federal regulation, to achieve their shared goals.
- JLR opposes the continued inclusion of upstream emissions. To further align with EPA, we would strongly support their removal from ZEVs in the regulation.
- JLR does not support the introduction of an ICE-only fleet target.
- JLR is concerned about any changes to the certified PHEV CO<sub>2</sub> value, namely through the adjustment of the utility factor, and what impact this will have on fleet average CO<sub>2</sub> compliance. We recommend that CARB work with EPA on this issue to find a balanced solution that suits both agencies and industry.

JLR appreciates the opportunity to share our ideas on this critical subject. We look forward to continuing to work with CARB moving forward.

Thank you for your consideration of our comments.

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## Appendix

### Further Information About JLR

Despite JLRNA's relatively small market share, we are proud of the outsized impact we have on the local US economy. Through our headquarters operation in Mahwah, New Jersey, our Digital Design Center in Portland, Oregon, our nationwide Parts Distribution Centers, port operations in California, Georgia, and Maryland plus our supplier retailer network, we are responsible for approximately 10,000 US jobs.

Our aims don't stop at our Reimagine strategy. Our sustainability goals, approved by the Science Based Targets initiative (SBTi), put us on a pathway to limit warming to 1.5°C in line with the Paris Agreement. We aim to be a net zero carbon business by 2039, with an ambition for global zero tailpipe emissions by 2036.

We are committed to this journey but know that we cannot drive it alone. Despite our size, we're investing £15 billion over five years in our industrial footprint, vehicle programs, autonomous, artificial intelligence (AI) and digital technologies and people skills to make it happen. Transforming the car market to a zero-emission future requires the right set of conditions - a combination of infrastructure improvements, consumer incentives, consumer readiness.

JLR is committed to reducing CO<sub>2</sub> emissions of our passenger cars and light trucks. JLR embarked on an extensive journey to reduce its fleet average CO<sub>2</sub>, which was highlighted in the in the recently published 2023 EPA Automotive Trends Report.

*"Compared to the first year of the program, Jaguar Land Rover leads manufacturers in the overall reduction of 2-cycle CO<sub>2</sub> emissions (99 g/mi)<sup>7</sup>".*

JLR has accomplished this by focusing on improving all aspects of its fleet CO<sub>2</sub> and fuel economy: improving the traditional internal combustion engine fleet, investing in electrification and low carbon technologies. Our 2023MY Range Rover model is fitted with a lightweight electronic air suspension system that aids efficiency and is responsible for up to 13 g/mile CO<sub>2</sub> reduction compared to a hydraulic system. Additionally, it features intelligent All-Wheel Drive (iAWD) which optimizes efficiency at speeds above 21mph and up to 100mph, reducing drag losses by 30% and contributing to a reduction in CO<sub>2</sub> emissions of up to 6.4 g/mile.

JLR has invested a significant amount of money in developing our cleanest and most efficient engines to date with our world-class Ingenium engines. This can be combined with the addition of our Mild Hybrid Electric Vehicle System, which is capable of harvesting energy on the move, further improving vehicle efficiency.

The biggest improvements in our fleet will be seen in the years to come through our transition to electrification. JLR will harness strategic partnerships to facilitate our ambitious journey. Our partnership with US-based Wolfspeed, Inc. ensures the supply of Silicon Carbide semiconductors for the inverters in our next generation electric vehicles, delivering increased powertrain efficiency and extended driving range through managing the transfer of power

<sup>7</sup> EPA Trends Report 2023- <https://www.epa.gov/system/files/documents/2023-12/420r23033.pdf>

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from the battery to the electric motors. The first Range Rover vehicles with this advanced technology will be available from 2024, and the new all-electric Jaguar brand the following year.

It is through our continued participation in the all-electric Formula E World Championship where we can design, collaborate, test, and develop new sustainable technologies at pace. The partnership with Wolfspeed builds on this – their advanced Silicon Carbide technology has been used to accelerate on-track efficiency and performance with the race-winning Jaguar TCS Racing team competing in the Formula E World Championship.

Another key strategic partnership is with NVIDIA, the leader in AI and computing, to jointly develop and deliver next-generation automated driving systems plus AI-enabled services and experiences for its customers. Starting in 2025, all new Jaguar and Land Rover vehicles will be built on the NVIDIA DRIVE™ software-defined platform—delivering a wide spectrum of active safety, automated driving, and parking systems as well as driver assistance systems.

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