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Australian Government

Department of Infrastructure, Regional Development and Cities

MEETING BRIEF

PDR ID:	EC18-001048
Subject:	Meeting with the Federal Chamber of Automotive Industries (FCAI) to discuss vehicle emissions
Attendees:	Tony Weber, Chief Executive
Date and Time:	3 August 2018
Location:	Pip Spence's office

Key Issues:

- The FCAI wishes to discuss the Ministerial Forum on Vehicle Emissions' consideration of standards for fuel efficiency (CO₂), noxious emissions (Euro 6) (led by this Department) and fuel quality (led by the Department of the Environment and Energy (DoEE)). s34 - cabinet
- On 25 May 2018, the FCAI, Australian Automobile Association (AAA) and the Australian Institute of Petroleum (AIP) signed a joint letter to the Ministerial Forum (Ministers Fletcher and Frydenberg) (see <u>Attachment A of MB18-000653 (Attachment 1))</u> proposing the following:
 - Introducing a light vehicle fuel efficiency standard that aims to achieve an overall fleet average fuel efficiency equivalent to 112gCO₂/km by 2030, plus credits and flexibilities, phased in from 2020.
 - Introducing an early stage of Euro 6, Euro 6b, for newly approved light petrol and diesel vehicle models from 2022. It proposes to phase in latest stage of Euro 6, Euro 6d, from 2027 to 2029, for petrol and diesel vehicles, subject to a further review of aromatics levels in petrol in 2022.
 - Introducing more stringent fuel quality standards that set a limit of 10 ppm sulfur for premium unleaded petrol, and 10-30 ppm for regular unleaded petrol (subject to a review before 2020), and a pool average of 35 per cent aromatics from 2022, with a legislated limit 45 per cent, subject to a further review in 2022.
- 3. The FCAI, AAA and AIP claim this proposal will minimise the impact of the changes on consumers and the viability of local refineries. The Ministerial Forum has not responded to the proposal, but we understand that a joint response by Ministers Fletcher and Frydenberg is currently under consideration.

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Contact Name: Position: s47F - personal privac

Director

Contact Number: Branch/Section:



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Environmental Standards

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Background:

Sensitivities:

Fuel efficiency standards

- 10. In July 2017, the Department released a proposed model for a light vehicle fuel efficiency standard as a basis for further consultation with key stakeholders, including the FCAI. The FCAI considered that this model, which proposed a single target 105gCO₂/km by 2025 for all light vehicles, would significantly increase costs, which would lead to higher vehicle prices and reduced consumer choice
- 11. Following stakeholder consultation, Minister Fletcher endorsed a compromise option for a standard, which offered several concessions to vehicle manufacturers. This proposed:
 - an overall policy target of 105gCO₂/km by 2027, underpinned by a legislated two-target system, with separate targets for passenger vehicles, and light commercial vehicles/off-road capable SUVs, and
 - additional credits of up to 16gCO₂/km for off-cycle technologies and improved air conditioning systems. With these proposed credits and flexibilities, this would effectively require manufacturers to achieve a fleet average of 121gCO₂/km by 2027.

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Released under For Act by Stephanie Werner General Manager Land Transport Policy and Safety

1 August 2018

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This is a Meeting Brief for Information



 Australian Government

 Department of Infrastructure, Regional Development and Cities

FOR: The Hon Paul Fletcher MP cc : The Hon Michael McCormack MP	PDR ID: MB18-000653	Action required by: 29 May 2018
Dr Steven Kennedy PSM, Secretary		Reason: Date of meeting
Ms Pip Spence, Deputy Secretary		

SUBJECT: Ministerial Forum on Vehicle Emissions

MEETING WITH: The Hon Josh Frydenberg MP, Minister for the Environment and Energy

Purpose of Meeting

1. To discuss next steps for the Ministerial Forum on Vehicle Emissions and a new proposed package of measures from the Australian Automobile Association (AAA), Federal Chamber of Automotive Industries (FCAI) and Australian Institute of Petroleum (AIP).

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Main Issues and Expected Outcomes

- 4. Benefits of this package include fuel savings for consumers of over \$220 a year, improved air quality that would save \$340 million in health costs a year, and reduced greenhouse gas emissions of over 22 million tonnes to 2030. Overall, it is estimated that the package would provide around \$2 of benefits for the Australian community for every \$1 of cost.
- 5. The AAA, FCAI and AIP's alternative package, provided on 25 May 2018, comprises:
 - introducing a light vehicle fuel efficiency standard that aims to achieve an overall fleet average fuel efficiency equivalent to 112gCO₂/km by 2030, phased in from 2020
 - introducing the earlier stage of Euro 6, Euro 6b, for new light vehicle models from 2022, and Euro 6d for new light vehicle models from 2027 and for all new light vehicles from 2029
 - introducing more stringent fuel quality standards similar to the Ministerial Forum's proposal, but with an additional review of sulfur in regular unleaded petrol before 2020.

Cleared by: Stephanie Werner Date: 29 May 2018 Phone: 6274 7652 Mobile contact: ^{\$47F - personal privacy} Branch: Land Transport Policy and Safety Division: Surface Transport Policy

Paul Fletcher

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- 6. AAA in particular continues to make its support for any fuel efficiency standard contingent on the introduction of real-world (on-road) vehicle emissions testing.
- 7. Details of the key differences between the alternative proposed package and the Ministerial Forum's proposed package are at <u>Attachment B</u>.
- 8. The alternative package would result in lower fuel savings, reduced health benefits and higher greenhouse gas emissions compared with the Ministerial Forum's package.
 - The alternative fuel efficiency standard is estimated to deliver little more than business as usual improvements in fuel efficiency. <u>Attachment C</u> contains graphs that compare the rates of improvements and trajectories required to achieve this standard, the standard proposed by the Ministerial Forum, and the standards previously proposed by the department, AAA and FCAI, along with the standards adopted in the US and EU. <u>Attachment D</u> compares the details of these various proposed standards.
 - Rough estimates by the department suggest that the alternative fuel efficiency standard would offer fuel savings of less than \$100 a year (compared with over \$220) and reduce greenhouse gas emissions by less than 10 million tonnes (compared with over 22 million tonnes).

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9. For further information, <u>Attachment E</u> is a summary table outlining the current approach to fuel efficiency, noxious emissions and fuel quality standards in Australia, the Ministerial Forum's proposed options, stakeholder views and implications of these options, and what is happening internationally.

Consultation

Department of the Environment and Energy

Attachments

- <u>Attachment A</u> AAA, FCAI and AIP joint proposed package to reduce vehicle emissions
- <u>Attachment B</u> Summary of key differences between the Ministerial Forum's proposed package and the AAA, FCAI and AIP joint package
- <u>Attachment C</u> Comparison of rates of improvements and trajectories required to meet proposed options for a fuel efficiency standard
- Attachment D Details of proposed options for a fuel efficiency standard
- <u>Attachment E</u> Vehicle emissions standards summary table







25 May 2018

The Hon Paul Fletcher MP Minister for Urban Infrastructure and Cities Parliament House CANBERRA ACT 2600 **The Hon Josh Frydenberg MP** Minister for the Environment and Energy Parliament House CANBERRA ACT 2600

Dear Ministers

We write to you in your roles as members of the Government's Ministerial Forum on Vehicle Emissions to propose a comprehensive plan for the Government to achieve its objectives in relation to regulation of fuel quality, noxious emissions and CO2 emissions from the new light vehicle fleet.

The AAA, AIP and FCAI share a strong view that the Ministerial Forum needs to deliver a longer-term positive solution that addresses all three of these elements. This must include appropriate lead-times to protect the long term interests of Australian motorists and ensure vehicle companies and the fuel refining industry are able to deliver the required vehicle technologies and fuel in a cost-effective way.

To assist the Ministerial Forum, we have collectively developed a comprehensive and integrated timetable which allows the Government to achieve its objectives. The proposal is outlined in the attached table and sets out timelines for:

- Review of fuel quality standards and the introduction of tighter fuel quality.
- Staged introduction of the various levels of Euro 6, linked to the staging of tighter fuel quality.
- A long term CO2 standard with annual targets starting in 2020, which will result in a 35% reduction in CO2 for MA category (passenger) vehicles over the 2020 to 2030 timeframe. (Note: this is the same percentage reduction over a 10 year timeframe as other major markets and includes a scheme of proposed credits and flexibilities).

Australian Institute of Petroleum - Federal Chamber of Automotive Industries - Australian Automobile Association

We believe the integrated timeline agreed by our respective organisations provides consistency between the three elements of the Ministerial Forum and the best balance between:

- delivering real environmental improvements
- providing long term policy certainty to the domestic oil refining industry to facilitate potential investment/business decisions
- supporting long term policy certainty for the vehicle industry that will allow the brands to continue to provide up to date technology in the vehicle models that Australians demand, and
- minimising the impact on consumers resulting from increases in the cost of fuel or vehicles, or restriction in the choice of new vehicles.

Importantly, under this proposal there are concrete steps along the implementation timeframe to demonstrate action and progress. This includes a substantial review of progress in 2022, when there will be greater clarity in the market and regulatory environment internationally for the refining and car industries. This review will allow for consideration of any further changes to the proposal in light of international developments relevant to Australian market conditions.

In addition, the AAA and AIP strongly believe the package proposed in the attached document must be supported by a consumer-focused test program to provide information on real-world fuel consumption and vehicle emissions. The AAA and AIP believe such a program could be implemented almost immediately as an enhancement to the information currently provided through the Green Vehicle Guide.

The FCAI acknowledges that a Real Driving Emissions (RDE) international standard is being developed and will be introduced to Australia at some time. The FCAI would like to consult with the Government on their views on the AAA's proposal of the Government introducing a unique Australian consumer information program on real-world fuel consumption.

We would each welcome the opportunity to discuss this proposal with you and will contact your offices in coming days to arrange appointments.

Paul Barrett

Tony Weber

Michael Bradley

any Weber

Chief Executive Officer Australian Institute of Petroleum Chief Executive Federal Chamber of Automotive Industries

Chief Executive Australian Automobile Association

Year	Fuel standards	Euro 6	CO2 standard	Additional measures supported by AAA and AIP
2019	Commencement of voluntary industry reporting on aromatics and sulfur in Australian market petrol Review of 30ppm sulfur for ULP as part of the reviews of other fuel parameters in the draft RIS.			Introduction of a test program providing consumer information on real-world fuel consumption and vehicle emissions to assist consumers in buying low emission vehicles.
2020			 154 g/km for MA category vehicles 197 g/km for NA + MC category vehicles 	
2021	Commencement of annual industry reporting to meet the following benchmarks from 1 July 2021 (best endeavours basis): ULP - Aromatics: 35% pool average, 150ppm max PULP - Sulfur: 35 ppm pool average, 50ppm max - Aromatics: 42% pool average, 50ppm max		 150 g/km for MA category vehicles 193 g/km for NA + MC category vehicles 	
2022	Regulated 35% aromatics pool average for the entire petrol pool, and 45% max Review of aromatics in petrol to determine aromatics max to apply from 1 July 2027	Euro 6b (diesel and petrol engine light vehicles) for new models	 146 g/km for MA category vehicles 189 g/km for NA + MC category vehicles Review of CO2 standards, to confirm appropriateness for next five years (out to 2027) and set new 10-year (2031-32) target 	
2023			 140 g/km for MA category vehicles 183 g/km for NA + MC category vehicles 	
2024			 134 g/km for MA category vehicles 177 g/km for NA + MC category vehicles 	
2025			 128 g/km for MA category vehicles 172 g/km for NA + MC category vehicles 	
2026			 122 g/km for MA category vehicles 166 g/km for NA + MC category vehicles 	
2027	From 1 July 2027, Regulated 10ppm sulfur max for PULP, and ULP (subject to review of 30ppm in ULP)	Euro 6c/d (diesel and petrol engine light vehicles) for new models, subject to outcomes of fuel standards review	 116 g/km for MA category vehicles 160 g/km for NA + MC category vehicles Review of CO2 standards to confirm appropriateness of targets out to 2032 and to consider new 10-year targets (i.e. 2033-2037) 	
2028			 110 g/km for MA category vehicles 154 g/km for NA + MC category vehicles 	
2029		Euro 6c/d (diesel and petrol engine light vehicles) for all vehicles, subject to outcomes of aromatics review	 104 g/km for MA category vehicles 149 g/km for NA + MC category vehicles 	
2030			 98 g/km for MA category vehicles 143 g/km for NA + MC category vehicles 	

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Key differe	nces in proposals	Current proposal	Alternative industry proposal
Fuel efficiency	Target and timeframe	 Overall target of 105gCO₂/km (after credits) by 2027: 89gCO₂/km for passenger vehicles 145gCO₂/km for light commercial vehicles (including off-road capable SUVs) Phase in on percentage of sales basis from 2022 	 Equivalent to 112gCO₂/km (after credits) by 2030: 98gCO₂/km for passenger vehicles 143gCO₂/km for light commercial vehicles (including off-road capable SUVs) Phase in via annual targets from 2020
	Proposed credits	Off cycle: - Up to 6gCO ₂ /km for all vehicles Air conditioning (gases and efficiency): - Up to 10gCO ₂ /km for all vehicles	Off cycle- not specified but believed to be: - Up to 7gCO ₂ /km for all vehicles Air conditioning (gases and efficiency)- not specified but believed to be: - Up to 10gCO ₂ /km for passenger vehicles - Up to 15gCO ₂ /km for light commercial vehicles
		Super credits - 3x for 0gCO ₂ /km - 2x for 1-30gCO ₂ /km - 1.5x for 31-60gCO ₂ /km (and 50% below limit curve)	Super credits - not specified, but believed to be: - 3x for 0gCO ₂ /km - 2x for 66% below limit curve - 1.5x for 33% below limit curve
	Estimated Abatement	>22Mt by 2030	Not modelled, but expected to be <10Mt by 2030
	Estimated fuel savings	>\$220 in 2027	Not modelled, but expected to be <\$100 by 2030



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Comparison of Standards

Nominal annual improvements required (after credits are counted)



As shown by the slopes of the graph above, the FCAI and AAA's (brown) proposals nominally require a similar rate of improvement to the US and EU standards. The Department's original (yellow) and revised (green) proposals nominally require a higher rate of improvement than the US and EU standards.

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eframe 0 to 2030 0 to 2025* 0 to 2027 0 to 2030 0 to 2030 2 to 2030 2 to 2016 7 to 2021 2 to 2025 (under review) 2 to 2025 (proposed) 6 to 2030 (proposed) 1	Average Average	e annual improv 2.9% 8.1% 6.1% 3.4% 3.6% 4.0% 4.1% 4.5% 4.9% 3.4% 4.0% 3.2%	vement
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2 to 2016 7 to 2021 2 to 2025 (under review) 2 to 2021 2 to 2025 (proposed) 6 to 2030 (proposed)	2 2 7 7	4.1% 4.5% 4.9% 3.4% 4.0% 3.2%	
7 to 2021 2 to 2025 (under review) 2 to 2021 2 to 2025 (proposed) 6 to 2030 (proposed) L		4.5% 4.9% 3.4% 4.0% 3.2%	
2 to 2025 (under review) 2 to 2021 2 to 2025 (proposed) 6 to 2030 (proposed) L		4.9% 3.4% 4.0% 3.2%	
2 to 2021 2 to 2025 (proposed) 6 to 2030 (proposed)	24	3.4% 4.0% 3.2%	
2 to 2025 (proposed) 6 to 2030 (proposed) L	54	4.0% 3.2%	
6 to 2030 (proposed) L	24 ×	3.2%	
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Effective improvements required (before credits are counted)



As the credits available under the FCAI and AAA models (~18.5gCO₂/km) are greater than the improvement required beyond business as usual, manufacturers could comply with their proposals through credits alone. As manufacturers still incur an additional cost to obtain these credits, the Department does anticipate any backsliding in performance on the official test. The effective rate of improvement required under the Department's revised proposal is around 4.3 per cent, which is slightly higher than that expected under the current US and proposed EU standards.

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Standard	targets (before credits are coul	nted)
	Timeframe	Average annual improvement
Business as usual (No standard)	2020 to 2030	2.9%
Original model (released July 2017)	2020 to 2025*	8.2%
Revised model (strong proposal)	2020 to 2027	4.3%
FCAI model (March 2017)	2020 to 2030	2.9%
AAA model (December 2017) (middle proposal)	2020 to 2030	2.9%
Draft joint proposal (May 2018)	2020 to 2030	2.9%
	2012 to 2016	4.0%
JS	2017 to 2021	3.2%
	2022 to 2025 (under review)	3.5%
	2012 to 2021	3.4%
EU	2022 to 2025 (proposed)	4.0%
	2026 to 2030 (proposed)	3.2%
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Summary of options for a fuel efficiency standard

	Model released for Current proposal AAA proposal FCAI proposal					Joint proposal		
	consultation in 2017		(not modelled in RIS)	(not modelled in RIS)	(not modelled in RIS)		<u>RIS)</u>	
Targets and timeframe			1	I				
Overall target (after credits applied) ¹	105gCO ₂ /km in 2025	105gCO ₂ /km in 2027	~117gCO ₂ /km by 2030	~120gCO ₂ /km by 2030	~11	2g CO ₂ /km by 2	030	
Effective target before credits are deducted	105-117gCO ₂ /km in 2025 (depending on super credit uptake)	123gCO ₂ /km in 2027 (depending on super credit uptake)	135.5gCO ₂ /km in 2030 (assumes phase out of super credits by 2030)	138.5gCO₂/km (excluding super credits)	>130gCO ₂ /km			
Split targets for passenger and light commercial vehicles	No	89gCO ₂ /km for passenger vehicles (including car SUVs) 145gCO ₂ /km for light commercial vehicles (including off-road capable SUVs)	106gCO ₂ /km for passenger vehicles (including car SUVs) 143gCO ₂ /km for light commercial vehicles (including off-road capable SUVs)	108gCO ₂ /km for passenger vehicles (including car SUVs) 148gCO ₂ /km for light commercial vehicles (including off-road capable SUVs)	98gCO ₂ /km b (ir 143gCO ₂ /km vehicles (incl	y 2030 for passencluding car SU by 2030 for ligh uding off-road c	enger vehicles /s) at commercial capable SUVs)	
Phase in arrangements	Reporting from 2020 65% compliance by 2022 75% compliance by 2023 80% compliance by 2024 100% compliance by 2025	Reporting from 2020 30% compliance by 2022 40% compliance by 2023 50% compliance by 2025 80% compliance by 2026 100% compliance by 2027	Reporting from 2020 Phase in 2022-2030 20% phase in by 2022, increasing by 10% each year until 2030	Phase in 2022-2030 via annual targets FCAI links start date to better fuel quality	Phase in 2020-2030 via annual targets 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030	Passenger (gCO ₂ /km) 154 150 146 140 134 128 122 116 110 104 98	Light Commercial (gCO ₂ /km) 197 193 189 183 187 183 177 172 166 160 154 149 143	
Financial penalties	\$100 per excess debit	As per consultation model	As per consultation model	No		Not specified		

¹ AAA and FCAI's proposed models do not specify an overall target – this is an estimate based on 70% car and 30% light commercial.

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Model released for consultation in July 2017		Current proposal	AAA proposal (Dec 2017) (not modelled in RIS)	FCAI proposal (March 2017) (not modelled in RIS)	Ī
Credits and flexibilities				<u> </u>	
'Off-cycle' credits	No	Up to 6gCO₂/km (EU and US)	Up to 7gCO ₂ /km (EU credits only)	Up to 6.2gCO ₂ /km (EU and US)	Not spec
Air-conditioning credits (gases and efficiency)	No	Up to 10gCO ₂ /km for all vehicles	Up to 10gCO ₂ /km for passenger vehicles Up to 15gCO ₂ /km for light commercial vehicles	As per AAA proposal	
Super credits	Multiplier of: 3 for zero emission vehicles 2 for 1-30gCO2/kmAs per consultation model1.5 for 31-60gCO2/km (and 50% below limit curve)As per consultation model		As per consultation model Review in 2025 Phase out by 2030	Multipliers linked to market share for: Passenger vehicles <100gCO ₂ /km Light commercial vehicles <150gCO ₂ /km	
Banking and borrowing within a distributor	Up to 3 years	Up to 5 years	As per consultation model	Yes	
Credits transfers between passenger and light commercial vehicles within a distributor	N/A	Yes	Yes	Yes	
Credits transfers (pooling or exchanging) between distributors	No	To be determined	Not proposed, but previously supported by AAA	Yes	
Concessions for small manufacturers	Distributors that sell <1,000 vehicles/year may apply for an alternative target or exemption	As per consultation model	<10,000 vehicles/year may opt for an equivalent percentage improvement	Yes	
	·	Relea			

Joint proposal (May 2017) (not modelled in RIS)

cified, but expected to be similar to previous proposals

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	Model releas	ed for consultation	on in July 2017	Current proposal		Current proposal AAA proposal (Dec 2017) (not modelled in RIS)		FCAI proposal (March 2017) (not modelled in RIS)	<u>Joint proposal (May 2018)</u> (not modelled in RIS)						
Key Outcomes	1								,						
Technology mix required	Passenger cars 11% electric 25% hybrid 35% diesel 25% petrol	SUVs (car and off- road capable) 10% electric 18% hybrid 63% diesel 7% petrol	Light Commercial 5% electric 3% hybrid 89% diesel 3% petrol	Passenger vehicles 5% electric 3% plug-in hybrid 36% hybrid 13% diesel 43% petrol	Commercial vehicles 1% electric 86% diesel 13% petrol	Passenger vehicles 4% electric 8% hybrid 25% diesel 61% petrol	Commercial vehicles 87% diesel 13% petrol	Not modelled but likely to be similar to AAA	Not modelled but likely to be similar to AAA						
Estimated cost impacts	Average cost	increase of \$2,130	Passenger vehicles Commercial Passenger vehicles Conservation 15% - up to \$1,500 vehicles 3.3% - up to \$1,500 0.39 23% - \$1,500 to 9% - up to \$1,500 9% - \$1,500 to \$3,000 0.49 se of \$2,130-\$2,169 \$3,000 1% - \$1,500 to 5.1% - \$3,000 to \$3,000 0.49 5% - \$4,500 to \$4,500 \$3,000 \$4,500 0.59 5% - \$4,500 to \$8,500 1% - \$4,500 to 3.5% - over \$4,500 (electric)		<u>Commercial vehicles</u> 0.3% - up to \$1,500 0.4% - \$1,500 to \$3,000 0.5% - over \$4,500 (electric)	Not modelled but likely to be similar to AAA	Not modelled but likely to be similar to AAA								
	BITRE estimates: \$1,922 for passenger cars and SUVs \$3,120 for light commercial vehicles		SUVs hicles	BITRE estimates: \$687 for passenger vehicles \$1223 for light commercial vehicles		Not modelled		Not modelled	Not modelled						
Effective annual improvement required (from 2020, before credits applied)	e annual 8.2% (2.8x BAU) ement required (from efore credits applied)			4.3% (1.5x BAU)		2.9% (Similar to BAU)		2.9% (Similar to BAU)	2.9% (Similar to BAU)						
Effective improvement on BAU (before credits) ²	nt on >25%			>16%		Up to 6.6% worse (if achieved with credits) Up to 9.2% better (if achieved without credits)		Up to 6.6% worse (if achieved with credits) Up to 9.2% better (if achieved without credits)		Up to 9% worse (if achieved with credits) Up to 5.5% better (if achieved without credits)	Up to 2.3% worse (if achieved with credits) Up to 12% better (if achieved without credits)				
Estimated reductions in greenhouse gas emissions (million tonnes)	>46 Mt by 2030		ctions in >46 Mt by 2030 >22 Mt by 2030 emissions >21 Mt by 2030		>46 Mt by 2030			<10Mt by 2030 (rough estimate only). Further modelling required for a more precise estimate.		<10Mt by 2030 (rough estimate only). Further modelling required for a more precise estimate.		<10Mt by 2030 (rough estimate only). Further modelling required for a more precise estimate.		Further modelling required but expected to be slightly less than AAA.	Further modelling required but expected to be slightly more than AAA.
Estimated fuel savings ³	\$500 in 2025		8	>\$220 in 2027		<\$100 in 2030 (rough estimate only). Further modelling required for a more precise estimate. AAA considers that on-road testing is required to estimate fuel savings reliably.		Further modelling required but expected to be slightly less than AAA.	Further modelling required but expected to be slightly more than AAA.						

² BITRE BAU – 157 in 2025 (2016 estimate), 146 in 2027 and 127 in 2030 (depending on EV uptake)

³ Fuel savings are based on BITRE estimates of on-road fuel consumption for an average performing non-electric passenger vehicle travelling 15,800km per year and retail fuel price of \$1.30 per litre. Potential fuel savings will be higher if the fuel prices are higher, motorists travel further, or the standard is achieved entirely through fuel efficiency improvements.

Light-duty vehicles																	
'Business-as-usual' Projections		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
		-															
Stock	(thousand)																
	Cars + SUVs	13759.5	14024.3	14276.2	14550.7	14837.1	15131.5	15437.4	15761.6	16078.5	16405.4	16734.4	17068.8	17387.3	17693.5	17993.4	18286.9
	LCVs	2950.1	3062.6	3185.7	3305.0	3425.5	3547.1	3669.0	3786.3	3900.2	4009.6	4113.4	4219.0	4319.7	4417.5	4513.1	4606.0
	All	16709.5	17086.9	17461.9	17855.6	18262.6	18678.7	19106.4	19547.9	19978.7	20415.0	20847.8	21287.8	21707.1	22111.0	22506.4	22892.9
New sales	(thousand)																
Cars+SUVs	Diesel	162.0	165.2	162.3	161.5	161.5	162.2	161.2	158.4	155.5	152.7	149.8	147.1	144.4	141.7	139.1	136.6
	Petrol + other	737.9	768.1	759.2	764.6	773.9	787.2	801.5	816.8	831.4	846.1	860.9	875.8	890.7	905.8	921.0	936.3
	Total	899.9	933.3	921.5	926.1	935.4	949.4	962.7	975.2	986.9	998.8	1010.7	1022.9	1035.1	1047.6	1060.1	1072.9
LCVs	Diesel	175.5	183.4	198.6	199.5	198.5	195.6	192.8	190.0	187.2	184.5	181.9	179.2	176.6	174.1	173.3	174.3
	Petrol + other	24.5	24.6	26.4	28.8	33.3	39.9	46.5	53.1	59.8	66.4	73.1	79.8	86.6	93.3	98.4	101.7
	Total	200.0	208.0	225.0	228.4	231.8	235.5	239.3	243.1	247.0	250.9	255.0	259.0	263.2	267.4	271.7	276.0
All	Diesel	337.4	348.6	360.9	361.0	359.9	357.8	354.0	348.4	342.7	337.2	331.7	326.3	321.0	315.8	312.5	310.9
	Petrol + other	762.5	792.7	785.6	793.5	807.2	827.1	848.0	869.9	891.2	912.5	934.0	955.6	977.3	999.1	1019.3	1038.0
	Total	1099.9	1141.3	1146.5	1154.5	1167.2	1184.9	1202.0	1218.3	1233.9	1249.7	1265.7	1281.9	1298.3	1315.0	1331.8	1348.9
EV sales - BEVs and PHEVs	cars	1.8	1.7	1.3	2.1	2.9	4.7	8.2	14.9	21.8	29.7	40.7	55.9	78.0	110.3	151.4	198.8
thou vehs	lcvs	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	1.1	2.0	3.0	4.5	6.8	10.1	13.0
	all	1.8	1.7	1.3	2.1	2.9	4.8	8.4	15.2	22.3	30.8	42.7	58.9	82.5	117.0	161.5	211.8
prop fleet		0.16%	0.15%	0.12%	0.18%	0.25%	0.40%	0.70%	1.25%	1.81%	2.46%	3.37%	4.60%	6.35%	8.90%	12.13%	15.71%
								×									
EV stock - BEVs and PHEVs	cars	2.9	4.6	5.8	7.9	10.8	15.4	23.5	38.3	59.8	89.1	129.3	184.3	261.0	369.5	518.3	713.5
thou vehs	lcvs	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	1.0	2.1	4.1	7.1	11.6	18.3	28.4	41.3
	all	2.9	4.6	5.9	7.9	10.8	15.5	23.8	38.8	60.8	91.2	133.3	191.4	272.6	387.8	546.7	754.8
prop fleet		0.02%	0.03%	0.03%	0.04%	0.06%	0.08%	0.12%	0.20%	0.30%	0.45%	0.64%	0.90%	1.26%	1.75%	2.43%	3.30%
		-															
EV stock	BEVs	1.4	2.2	2.9	3.7	5.1	8.1	14.0	25.9	43.8	68.8	104.6	155.0	227.1	332.1	480.1	676.5
thou vehs	PHEVs	1.5	2.4	3.0	4.3	5.7	7.4	9.7	12.8	17.1	22.4	28.8	36.4	45.5	55.7	66.6	78.3
NACE trend - new gCO2/km NE	EDC test				A T												
Cars + SUVs	Elec use=0g/km	174.2	173.1	171.8	168.5	165.2	161.7	158.0	154.8	151.8	148.5	143.9	138.8	133.8	127.6	120.4	112.7
LCVs		229.0	222.4	221.0	217.7	214.3	211.2	209.1	207.0	204.8	202.4	199.7	197.1	194.1	190.6	186.6	182.9
Total		184.2	182.1	181.4	178.2	174.9	171.6	168.2	165.2	162.4	159.3	155.1	150.5	146.0	140.4	133.9	127.1
	NACE % chg	-1.78%	-1.12%	-0.37%	-1.77%	-1.84%	-1.94%	-1.97%	-1.75%	-1.72%	-1.88%	-2.65%	-2.96%	-3.01%	-3.82%	-4.63%	-5.11%

Document 1.2

From: Sent: To:	s47F - personal privacy Friday, 23 April 2021 5:58 PM s47F - personal privacy STAGG Paula; ^{s47F - personal privacy} @industry.gov.au	ustry.gov.au;
Cc: Subject:	s47F - personal privacy FW: FCAI targets vs the previous fuel efficiency stand	RAWLINGS Louise dard RIS/proposal
Follow Up Flag: Flag Status:	[SEC=PROTECTED] Follow up Flagged	Š,

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Hi s47F - personal privacy,

Please find attached BITRE's (rough) estimates of the potential CO2eq. emissions savings from implementation of effective fuel efficiency standards for light vehicles over the next several decades. The estimates have been put together at short notice by s47F - personal privacy, based on the results of BITRE's 2016 fleet modelling and emissions research into the costs and benefits of setting a new light vehicle CO2/fuel efficiency standard (which was last updated in 2018).

The emissions reduction estimates are based on a relatively strong fuel efficiency standard for new light vehicles, targeting a sales-weighted test average of 105 gCO2/km by 2027 (dynamometer test average, not actual on-road driving conditions). Under these assumptions, the estimated national fleet-wide cumulative emissions abatement would be of the order of:

- 34 million tonnes of CO2eq to 2030 (4.6% cumulative light vehicle emissions between 2020 and 2030),
- 147 million tonnes of CO2eq to 2040 (10.9% cum. LV emissions 2020-2040), and
- 288 million tonnes of CO2eq. to 2050 (15.1% cum. LV emissions 2020-2050).

However, the assumptions about future electric vehicle (EV) penetration and the source of electricity used in EVs are relatively conservative, in view of recent rapid uptake of EVs around the world. More realistic assumptions about potential future Australian EV uptake and the potential use of household solar to power EVs would result in more significant emissions reductions.

Further details about the assumptions, emissions abatement potential and other complicating factors are outlined in ^{st/F- personal pr}response below.

Regards,

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Bureau of Infrastructure and Transport Research Economics Department of Infrastructure, Transport, Regional Development and Communications

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s47F - personal privacy e: s47F - personal privacy @infrastructure.gov.au GPO Box 594, Canberra ACT 2601

The department proudly acknowledges the Traditional Owners and Custodians of Australia, and their continuing connections to the land, waters and communities. We pay our respects to them and to their Elders past, present and emerging.

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From: ^{s47F - personal privacy} Sent: Friday, 23 April 2021 5:01 PM To: s47F - personal privacy Subject: RE: FCAI targets vs the previous fuel efficiency standard RIS/proposal [SEC=PROTECTED]

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Using the results of previous BITRE fleet modelling and emissions research into the costs and benefits of setting a new light vehicle CO2/fuel efficiency standard (which the Department used as the basis for a public consultation RIS in 2016; and where these initial estimates underwent considerable extension and updating in 2018, incorporating a wider range of scenario possibilities):

- For a relatively strong fuel efficiency standard for new light vehicles, targeting a sales-weighted test average of 105 gCO2/km by 2027 (where this is a dynamometer test average, not actual on-road driving conditions, and also assuming no credits are offered to manufacturers for related effects such as air conditioner improvements) the 2018 results estimated national fleet-wide abatement (cumulative) to 2030 of the order of 34 million tonnes of CO2 equivalent, to 2040 of the order of 147 million tonnes of CO2eq, and to 2050 of the order of 288 million tonnes of CO2eq.
- The scenario results are for 'standards' cases relative to 'business-as-usual' (BAU) improvements in vehicle fuel intensity. This first standards scenario (105 gCO2/km by 2027, no credits) would probably reach similar stringency levels to previous US targets, but still be well above the current European light vehicle targets. Note that the current FCAI voluntary target aims for a sales-weighted test average by 2030 roughly in the middle of the BAU trend and the efficiency standard scenario from the 2018 BITRE fleet modelling work.
- These results are also over the full fuel cycle (i.e. include upstream emissions for electricity generation for EV use). In this sense, the abatement estimates are conservative in at least two ways: a) in that they only assume a relatively slight increase in EV penetration under the action of the standard (from a projected proportion of the light vehicle fleet of 3.3% in 2030 and 25% in 2050 for the BAU scenario, to 4.7% in 2030 and 31.3% in 2050 for the standards scenario); and b) that the EVs were all assumed to be charged entirely using the Australian average grid generation, which will overstate actual emission from typical EV use, since a high proportion of EV owners have home solar panels (surveys imply that over 70% of the current EV fleet is coupled with home solar installation and that around 80% of their charging occurs at home).
- A suitably integrated measure targeting fleet efficiency improvements is likely to increase EV penetration more strongly than these conservative assumptions. If we now assume that the standards case would more likely increase the 2030 BAU projection (of about 3.3% of the on-road light vehicle fleet) to levels more like those in the Energeia 2020 projections (say about 8% of the fleet by 2030) then we would have something like 750 thousand more EVs on-road by 2030, than in the original standards scenario. I estimate that each EV, travelling

an average of 12500 km per annum, would reduce national emissions by around **2.5 tonnes of CO2 per year** by 2030 (allowing for trend increases in the proportion of renewables in the electricity generation sector over time and for a proportion of home solar charging). These 750 thousand extra EVs could thus add close to an extra 2 million tonnes of abatement per annum (than the above standards case estimate) by a 2030 timeframe.

- A related scenario calculation in the 2018 results considered the case of the same new fleet target (of 105 gCO2/km by 2027 no credits), but assuming strong decarbonisation of grid electricity generation also occurs delivering higher abatement estimates of **37.4 million tonnes of CO2eq** by 2030, and of the order of **179 million tonnes of CO2eq** to 2040.
- Some other 2018 scenarios had somewhat reduced emission reduction results: a target of 105 gCO2/km by 2027 but allowing credits (which would be less stringent than both the EU and US standards) had estimated national abatement (cumulative) to 2030 of the order of 22.6 million tonnes of CO2 equivalent, and to 2040 of the order of 93 million tonnes of CO2eq; while delaying meeting the target till 2030 (i.e. sales-weighted average of 105 gCO2/km by 2030 no credits) had estimated national abatement (cumulative) to 2030 of the order of 16.5 million tonnes of CO2 equivalent, and to 2040 of the order of 81.5 million tonnes of CO2eq.
- Slightly counteracting the conservative nature of some of the input assumptions, is that the original 2018 work assumed the 'standards' case abatement would commence from 2020 onwards so some of the previously estimated abatement will now be foregone, even if still meeting the same target by the same proposed date (e.g. 2027 for scenario 1). If we assume initial abatement estimated in 2018 for the period 2020 to 2023 is now to be left out of the calculation, the cumulative abatement totals would perhaps each be reduced by around 1 million tonnes of CO2 equivalent?
- Going forward, one of the central issues relates to how well future test results (i.e. fuel efficiency measured on a laboratory dynamometer to a set drive cycle) will reflect actual on-road fuel consumption. There is evidence that the gap, between cycle test levels for fuel consumption rates and those that actually result from real world driving conditions, has been growing (perhaps considerably) over recent years. If measures related to setting a standard, such as requirements around Real Driving Emissions (RDE) testing, are capable of reducing this gap, then resulting abatement might be substantially enhanced (and thus capable of being even higher than in the 2018 estimates).

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s22(1)(a)(ii) - irrelevant material

s22(1)(a)(ii) - irrelevant material

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C	s22(1)(a)(ii) - irrelevant materia
	From: s47F - personal privacy @infrastructure.gov.au] Sent: Friday, 9 April 2021 4:44 PM To: s47F - personal privacy@industry.gov.au> Cc: s47F - personal privacy @infrastructure.gov.au>; @industry.gov.au>; s47F - personal privacy @industry.gov.au>; s47F - personal privacy @infrastructure.gov.au>; s47F - personal privacy @infrastructure.gov.au>; s47F - personal privacy @infrastructure.gov.au>; s47F - personal privacy
	Subject: RE: FCAI targets vs the previous fuel efficiency standard RIS/proposal [SEC=PROTECTED] PROTECTED

Hi s47F.

The FCAI model was based on the final model proposed by the ^{s47F - personal privacy} in May 2018.

The key difference between their model and the compromise model we proposed were the timeframe and the 'headline' numbers (FCAI's model was equivalent to 112g/km after credits by 2030, whereas ours was 105g/km after credits by 2027).

We never modelled the FCAI's proposed approach, but we anticipated it would be similar to business as usual in 2030, as BITRE's modelling anticipates a strong EV uptake from the mid to late 2020s.

s22(1)(a)(ii)

Regards

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Technical Policy Officer • Land Transport Policy • Surface Transport Policy Division ^{547F - personal privacy}@infrastructure.gov.au ^{547F - personal privacy}

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From: s47F - personal privacy@industry.gov.au> Sent: Friday, 9 April 2021 2:58 PM To: s47F - personal privacy @infrastructure.gov.au> Cc: s47F - personal privacy @infrastructure.gov.au>; s47F - personal privacy @industry.gov.au>

Subject: FCAI targets vs the previous fuel efficiency standard RIS/proposal [SEC=PROTECTED]

s47F - personal privac

We're looking to advise our exec on how the FCAI targets relate to our proposed efficiency standards (the final model).

Following our MoG I can't seem to find the historical documents where we ran through these differences.

Would you be able to send through any available briefing materials on this question?

Many thanks,

s47F - personal privacy

Assistant Manager Transport | Technology Transition Branch | International Climate & Technology Division Department of Industry, Science, Energy & Resources Ph: ^{s47F - personal privacy} | 51 Allara Street, Canberra ACT 2600 | Email: ^{s47F - personal privacy} @industry.gov.au

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