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GM Holden

Submission to Australian Government Vehicle Emissions Discussion Paper – February 2016

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Introduction

GM Holden (Holden) welcomes the opportunity to respond to the Australian Government's Vehicle Emissions Discussion Paper (Discussion Paper).

Holden was established in South Australia in 1856 and merged with General Motors (GM) in 1931. In 1948 Holden was the first company to fully manufacture automobiles in Australia. Holden today sources its vehicle range from a production plant in Adelaide and other plants in Asia and Europe and sells its products through over 200 dealerships throughout Australia. Holden employs approximately 12,500 people.

By the end of 2017, Holden will cease its Australian manufacturing operations and thereafter source all of the vehicles which it sells in Australia from other global GM plants. Beyond 2017, Holden will continue to operate a world-class Proving Ground at Lang Lang, Victoria, to tune and calibrate future imported Holden products for Australian conditions and to conduct vehicle dynamics calibration, powertrain engineering and vehicle emissions work for Holden and GM.

Holden Engineering is a part of GM's global engineering group and in the past decade the Holden powertrain engineering group has specialised in work associated with GM's global High Feature V6 (HFV6) engines. Holden Engineering also conducts work for other GM global powertrain projects and has expertise in vehicle emissions work.

Holden Engine Operations (HEO) has been producing HFV6 engines at its Port Melbourne plant since 2003. HEO is scheduled to close by the end of 2016, a year earlier than Holden's vehicle assembly operations in Elizabeth, South Australia. Holden will continue to have an engineering workforce in Australia beyond 2017, with a particular focus on powertrain engineering. GM will also continue to operate a full-scale global Design Centre in Australia beyond 2017.

Holden and FCAI Submission

Holden is a member of the Federal Chamber of Automotive Industries (FCAI). Holden engineers have been drawing on their global powertrain and emissions expertise to provide advice and input to the FCAI's position on future vehicle emissions policy for Australia.

Holden supports the submission of the FCAI in response to the Discussion Paper. The FCAI's submission also draws on the detailed analysis and comparison of global vehicle emissions reduction schemes, commissioned from leading global automotive consultant, IHS Consulting.

Holden concurs with the FCAI that a whole of government approach to vehicle emissions reduction policy development is appropriate. Holden also agrees with the FCAI that key elements of policy which are described in the Discussion Paper are interrelated, such as the timing of Euro 6 introduction and the quality of Australian fuel, particularly with regard to sulphur content in petrol.

Policy Implementation

Emissions reduction policy implementation should acknowledge and factor in the long lead time of vehicle production planning and the execution of new technologies into vehicles. Lead times can be as long as 60 months for the development and delivery to market of new vehicle models.

Development and introduction of new vehicles is expensive and it can typically cost hundreds of millions of dollars to implement complete new vehicle programs. As automotive manufacturers typically move to a development model of predominantly global vehicle platforms, these high development costs are amortised across global volumes.

For smaller markets such as Australia, when compared to larger global markets such as USA and Europe, bringing in mature technology that has first been established in larger volume markets as a development cost priority helps to ameliorate the high cost of bringing new vehicles to smaller volume markets.

Harmonisation of design rules and regulations with global markets similar to Australia is typically encouraged, to mitigate against unnecessary development and implementation cost burdens.

Emissions Reduction Options

As outlined in the Discussion Paper and supported by Holden and the FCAI, in addition to a mandated CO₂ fuel efficiency standard for light vehicles, a variety of methods should be considered to formally contribute to achievement of vehicle emissions reduction, such as actively promoting improved driver behavior and the rollout of infrastructure which will enable increased utilisation of vehicle to vehicle/infrastructure (V2X) connectivity, to realise the emissions reduction benefits achievable through cooperative intelligent transport systems (C-ITS) and more efficient mobility.

C-ITS

Holden believes equivalent emphasis should be placed on C-ITS infrastructure development, as it is to consideration of incentives and infrastructure for alternative propulsion such as electric and fuel cell vehicles. C-ITS enabling technologies are already being introduced to vehicles in the Australian market and there is potential for a rapid expansion of C-ITS vehicle features if infrastructure is implemented to complement and support the technologies already in vehicles or are quickly becoming available.

Urban infrastructure innovation to build 'smarter' cities, decrease traffic congestion and decrease impact on the environment, should be developed in consultation with automotive manufacturers as well as infrastructure operators, to maximise the benefit of future vehicle technologies. For example, a currently pending technology enabler is the dedicated allocation of the 5.9GHz radio spectrum in Australia for the dedicated short range communications required for C-ITS and V2X utility.

Driver Behaviour

Advocacy of improved driver behaviour would be a simple way to encourage motorists to proactively reduce fuel consumption and vehicle emissions. Driver behaviours that would help to reduce fuel consumption and emissions include:

- Avoid heavy breaking and unnecessary acceleration; high revs results in higher fuel consumption
- Regular servicing ensures that engines are well tuned to operate efficiently and economically
- Avoid carrying excess weight; removing unnecessary cargo can reduce the total weight of the vehicle and improve fuel efficiency
- Removing roof racks when not in use or any other unnecessary accessories that protrude beyond the silhouette of the vehicle can reduce the vehicle's overall drag and improve its aerodynamics and fuel efficiency
- Tyres should be inflated to the correct pressure to maintain safety, durability and fuel efficiency.

Consumer Information – Green Vehicle Guide

Holden believes the Green Vehicle Guide (GVG) has been a valuable resource for consumers and it should continue to be presented in a user friendly way, to facilitate easy use. The GVG has also been a popular and useful tool for fleets, particularly during the procurement process.

Alternative Propulsion

In addition to efficient petrol internal combustion engines (ICE) Holden has offered and extensively marketed a variety of alternative powertrain technology and fuel options within its vehicle range over the past decade. These include:

- Diesel
- LPG
- E85 ethanol
- Spark Ignition Direct Injection
- Turbo boost
- Supercharge boost
- Active Fuel Management cylinder de-activation
- Battery Electric Vehicle with range extender.

Even with a variety of alternative powertrains and fuels on offer, Holden's experience is that Australian consumers continue to have a strong preference for petrol (91-98RON) fueled ICE's and purchasing choice seems to be predominantly driven by price and affordability. Lower prices for petrol have helped to sustain a strong demand for petrol ICEs, including boost variants.

Data in a February 2016 report by IHS Consulting commissioned by the FCAI and which has been presented to the Department of Infrastructure and Regional Development, suggests that the petrol ICE with boost and hybrid variants has a strong future outlook and will remain a very competitive powertrain for many years to come, as these types of ICE powertrain continue to improve with advancing technology and continually become

more fuel efficient, whilst remaining predominantly the most affordable of all powertrain types in Australia.

It has also been Holden's experience that sales of alternative fueled vehicles can be impacted by external incentives, such as a previous government rebate for LPG vehicles and availability of supply and infrastructure (for example LPG and E85 availability) and removal of incentives has negatively influenced alternative propulsion vehicle sales.

Australian Motoring Demographic and Consumer Preferences

Australian consumers have traditionally had a strong preference for larger vehicles. This trend continues, with many consumers moving from medium and large sized passenger cars into medium and large sized Sport Utility Vehicles (SUV) and Light Commercial Vehicles (LCV). SUV sales continue to grow year on year and a typical Australian family today often has at least two vehicles, such as a large car/SUV and a small car. Increasing urbanisation in Australia and environmental awareness amongst consumers is also driving a steady rise in small car and small SUV sales.

The Australian motoring demographic continues to create strong demand for larger, higher capacity engine vehicles. Regional agriculture and mining industries also rely on larger vehicles capable of operating under heavy and rough work conditions and travelling comfortably over long distances on roads of often poorer condition.

Small to medium sized business owners, particularly in trades, are increasingly buying dual cab LCV's to get the combined benefit of a work vehicle during the week and family recreation vehicle at weekends.

Many Australian drivers favour higher vehicle power for towing heavy loads (such as boats, caravans and horse floats), driving off-road and for overtaking. This all needs to be balanced with a need to reduce carbon dioxide and noxious emissions to decrease any impact on the environment and improve the quality of the air we breathe, particularly in urban areas.

Australian CO2 Standard

Holden supports the FCAI position for a mandated CO2 standard for Australia, with modelling to be conducted to develop corporate average fuel economy targets suitable for the Australian motoring demographic and market conditions.

All global jurisdictions where CO2 standards are applied are unique and Holden agrees with the FCAI recommendation not to directly copy another global jurisdiction. A CO2 standard should be tailored for Australia. The analysis conducted by IHS Consulting for the FCAI demonstrated some of the significant differences that can occur between various global CO2 standards.

It must also be acknowledged the range of different factors which input various global standards. For example, if the development of an Australian standard were to be

compared to the US/Canada standard, the off-cycle credits which are incorporated in the US and Canada standards and their targets, must be acknowledged.

Holden supports the FCAI position that parameters of a mandated target could be set to starting no earlier than 2020 and continue to 2030, with a mid-term review. This would align with the Government's post-2020 national greenhouse gas reduction parameter, from 2020 to 2030.

Holden suggests that development of an Australian standard could draw on structural aspects of a standard that is relevant to a similar vehicle market and driving demographic of Australia, such as the scheme structure and vehicle groupings of the US and Canada CO2 scheme but with targets modelled specific to Australia.

Holden supports the FCAI position that if vehicle groupings within a scheme are to be made, Australia should follow a similar vehicle grouping structure to the US/Canada, which would aggregate vehicles into groupings which most similarly reflect Australian motoring demographics.

CO2 target levels should then be developed that reflect the Australian market and which are realistic and possible for manufacturers to achieve.

Adoption of overly aggressive fleet average CO2 targets not reflective of Australian motoring demographics, consumer preferences and the relatively low cost of fuel in Australia compared to higher fuel cost markets such as Europe, may impact the range of vehicles available in Australia and restrict Australian consumer choice.

Furthermore, the cost of adopting a fleet average standard for fuel efficiency should be kept minimal. High reporting related costs for both government and manufacturers should be avoided.

As outlined in data provided by IHS Consulting to the FCAI, Australia more closely reflects the US vehicle model mix and demographic than it does to Europe. This is both current and historic. There are a variety of factors that have contributed to the differences between Australian and European vehicle fleets and consumer preferences.

There is a higher penetration of diesel and smaller capacity, manual powertrains in Europe, predominantly driven by historically higher petrol costs and vehicle registration fee brackets based on engine capacity. This has contributed to a higher number of small vehicles and less numbers of large SUV and LCV's in Europe, particularly less numbers of large and four-wheel-drive SUV's and LCV's in comparison to Australia.

There is a longer history of smaller vehicles of less than two litre engine capacity in Europe, than the US and Australia. Higher fuel costs have contributed to a dominance of manual transmissions in Europe, versus the long term popularity and preference for automatic transmissions in US and Australia.

Narrower roads and urban congestion has also contributed to a historical dominance of smaller vehicles in Europe.

Fuel Quality

Holden supports the FCAI position that fuel quality standards, CO2 standards and noxious emission standards should be considered together, as they are interrelated. A particular issue that needs to be properly assessed is the high sulphur content in the most popular and affordable Australian petrol.

When burnt through the engine combustion process, sulphur can form sulfides which poison the active sites on a modern three-way catalyst. This poisoning may be reversible through sustained high temperature operation, which may not be achievable for all drivers.

To meet Euro 6 particulates requirements, some vehicles may require a Gasoline Particulate Filter (GPF). There is concern that a GPF will be fouled by these sulfides, requiring more regular GPF cleaning routines, resulting in increased real-world fuel consumption and emissions. Further study into the effects of high sulphur fuel is required to fully determine the resulting degradation in real world emissions and fuel consumption.

Holden agrees with the FCAI that detailed assessment is required of the impact and compatibility of high sulphur content in fuel with operating Euro 6 enabled vehicles. Planned introduction of Euro 6 may be problematic if the sulphur content in Australian fuel is not addressed.

Conclusion

Holden supports the submission of the FCAI and an industry position that a mandatory CO2 emissions standard should be developed for Australia and be relevant to Australia's motoring demographic and consumer preferences.

Holden will continue to work with the FCAI and Australian Government to provide input on the development of a mandated CO2 standard. Holden will also continue to provide input to the assessment and consideration of the proposed introduction of Euro 6 and the associated issue of fuel quality in Australia.