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Commonwealth Department of Climate Change,
Energy, the Environment and Water
Liquid Fuels Branch Fuel Quality Section
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bp response to "Enabling supply of renewable diesel in Australia: a consultation paper on establishing a paraffinic diesel fuel standard for Australia"

bp Australia welcomes the opportunity to provide a submission to the Australian Government's paper discussing options to enable the supply of renewable diesel in Australia.

bp has a long and proud history of operations in Australia that reaches back to 1919. We have been supplying reliable and secure fuels over 100 years, and we employ over 5,000 people across the country. We aim to be a net zero company by 2050 or sooner and to help the world get there too. We've growth ambitions in Australia including biofuels; gas; hydrogen; wind; solar; next generation retail convenience; and electric vehicle charging – read more on bp.com.

The focus on supply of renewable diesel comes at a critical time

A homegrown biofuels industry presents real opportunities to decarbonise heavy industry, boost the economy and enhance fuel security. Liquid fuels currently account for a large proportion of Australia's energy use, so renewable diesel can play a role to meet Australia's decarbonisation commitments.

Through leveraging Australia's strengths, including a competitive agriculture sector, a variety of stakeholders from the largest mining companies to local farming communities could benefit. Australia is an advantaged producer of crop-based biofuels feedstocks and growth in this industry would support regional development and create jobs. Furthermore, a sovereign production capacity supplied by a domestically grown slate of flexible feedstocks offers opportunity to strengthen Australia's liquid fuels security.

In early 2023 we announced the Kwinana Renewable Fuels (KRF) project at the Kwinana Energy Hub (formerly oil refinery) in Western Australia. KRF is part of a global multi-billion-dollar investment by bp where refining infrastructure can be repurposed to produce drop-in fuel products (renewable diesel, sustainable aviation fuels and bio-Naphtha) that have the ability over time to support the decarbonisation of mining, aviation and heavy transport industries.

KRF's success will benefit from the government providing certainty in policy settings (such as this paper on fuel quality and supply) as early as possible; domestic demand for renewable fuels supported by policy such as a low carbon fuel standard. KRF is currently in front end engineering design, with plans to produce renewable fuels from 2026.

We share in the Government's belief that enabling the supply, import and selling of renewable diesel is an important step to transition Australia's liquid fuel sector.

Well designed, effective and efficient fuel quality standards that optimize and diversify the supply of renewable diesel and renewable diesel blends is key.

We do **not** support:

- Amending Australia's existing diesel fuel quality standard to cover renewable diesel – it is not sufficient. Our past experience applying (successfully) for a s13 under the Fuel Quality Act 2000 to trial HVO blending with our partner BHP brought to light the unnecessary lengthy and complex process required for a time-limited and temporary approval. This is not a sustainable practice for either industry or government. With more customers seeking to trial and test renewable diesel, neat paraffinic diesel needs its own standalone standard.

- Existing and new standards developed under *Fuel Quality Standard Act 2000* to prescribe requirements for assurances and certification that fuels and its inputs are derived from biogenic or environmentally friendly sources. Australia's extensive competition law protects businesses and consumers from false and misleading representations; and other mechanisms underway such as the Guarantee of Origin scheme and International Sustainability and Carbon Certification are better for giving customers confidence in the sustainability characteristics of inputs of fuel. bp supports the development of an Australian sustainability standard and certification system for decarbonized fuels to underpin sustainability claims, including for paraffinic diesel. However, we do not believe this should be developed as part of the *Fuel Quality Standard Act 2000*.

- An additional standard for paraffinic diesel/mineral diesel blends whereby each blend component would be required to meet its respective standard (either the automotive diesel standard or the paraffinic diesel standard), and the final product would need to meet the blend standard (option 2). This requirement would introduce additional complexity and add costs to product sourcing, certification, storage, handling and supply which makes its less affordable for customers.

Instead, bp **supports**:

- A standalone paraffinic diesel standard to give long term certainty of supply. It should be consistent with consistent with and tailored to Australian circumstances where appropriate.

- A standalone paraffinic diesel/mineral diesel blends standard to support Australia's energy security. Introducing new and niche products may create localised supply security issues – the solution is to allow for maximum optionality and diversification. A standalone blend standard would address this risk as it allows industry more supply options as we grow this new industry.

- Two separate standards will make it simpler and easier for government to regulate and for industry to supply while eliminating the risk of off-specification mineral diesel.

- See **Attachment A** for our detailed and technical responses to the consultation questions.

Supply needs demand: A low carbon fuel standard complements Australia's liquid fuel security framework.

bp is pleased to see the paper included discussion on renewable diesel as an opportunity to reduce emissions, and made linkages to the National Greenhouse and Energy Reporting (NGER) Scheme,

established by the *National Greenhouse and Energy Reporting Act 2007* along with the *Fuel Security Act 2021* and *Petroleum and Other Fuels Reporting Act 2017*.

bp implores the Australian Government to introduce a low carbon fuel standard to accelerate the orderly transition of our liquid fuels sector; and drive uptake of sustainable fuels under its climate emissions framework to deliver on net zero targets. It is the missing key.

In California, United States and across Europe, these jurisdictions have implemented a low carbon fuel standard which has been instrumental in driving the use of renewable fuels and reducing emissions for transport fuels. Fuels and its associated feedstock compete based on their performance and emissions intensity profiles. At the centre of the design is a market based emissions target or declining baseline which sends market signals for investors and customers. This allows customers to make low carbon choices that are right for them and provides producers the confidence to invest in biorefining plants. The Australian Government should announce the development of a low carbon fuel standard or similar in early 2024 to give investment certainty for biorefining projects such as Kwinana Renewable Fuels.

Renewable fuels provides an opportunity to enhance liquid fuels energy security

We recommend the Government update Australia's liquid fuel frameworks (*the Fuel Security Act 2021 and regulations*) to recognise the role biorefineries may play delivering domestic energy security benefits. In addition to incorporating to the eligibility for the Refining Fuel Security Services Payment, the legislation should be changed to cover Renewable paraffinic diesel, synthetic paraffinic kerosene, sustainable aviation fuels and bio- and synthetic feedstocks such as vegetable oil (canola), carinata oil, tallow, UCO, POME etc.

Shoring up though the diversification of biofuels and feedstocks can only strengthen Australia's supply chains. bp believes these actions will help address the energy trilemma: the world wants and needs energy that's secure and affordable as well as lower carbon.

Thank you again for the opportunity to provide a submission to "Enabling supply of renewable diesel in Australia: a consultation paper on establishing a paraffinic diesel fuel standard for Australia."

bp Australia
February 2024

Attachment A

Consultation Questions & Answers

Question 1: *Please provide information about the benefits or impacts from using renewable diesel within the existing vehicle and equipment fleet in Australia.*

Paraffinic diesel specifications to enable supply of renewable diesel are critical to Australia moving towards net zero.

bp supported a customer in the trial of off-road mining equipment using OEM-endorsed renewable diesel blends of 20% and 50%. This customer intends to provide feedback via this consultation response process.

bp believes paraffinic-mineral diesel blends at any % (including 100%) that meet the existing Australian Diesel Determination are fully compatible with Australia's existing engine and equipment fleets, along with existing bp infrastructure. However, blends with increasing proportions of paraffinic diesel, and neat paraffinic diesel, may not be compatible with all engines and will require engine manufacturer comments rather than bp.

In addition to this, there may be occurrences where neat paraffinic diesel and some paraffinic diesel and mineral diesel blends drop a hazard class due to flash point being below 61.5°C. bp already has experience in the storage, handling and transportation of low flash products with gasoline and aviation fuels.

Question 2: *Please provide any comments on the proposed approach or wording of the paraffinic diesel definition.*

No objections to the definition.

Definition as given will set quality requirements for paraffinic diesel from any source (futureproofing). Whether customers can use paraffinic diesel to lower their GHG's will depend on renewable certification system, not in scope of the paraffinic diesel specification. This aligns with RED-type methodology and the EN15940 paraffinic diesel standard.

Questions 3: *What are the advantages and disadvantages of including the paraffinic diesel parameters within the existing diesel standard?*

Advantages:

- Administration of a single reference document.
- The elimination for section 13 approvals for paraffinic and mineral diesel blends where the density is below 820kg/m^3 where all other properties in the blended product meets the Automotive Diesel Standard.

- Will allow higher blends of paraffinic diesel in mineral diesel on the condition that all other properties in the blended product meets the Automotive Diesel Standard. This will allow greater volume of paraffinic diesel to be supplied into the general public retail market (B2C) via a higher blend % of paraffinic blend stock and retailed as Automotive diesel without the requirement to change bowser branding advising the customer of the % of paraffinic diesel and the density of the diesel. bp would only supply this product if it is endorsed by the OEM's and the FSCC for the total vehicle parc.

Disadvantages:

- no defined paraffinic diesel specification for suppliers to purchase/manufacture/supply to.
- There would be no specific paraffinic diesel standard which is aligned to EN15940 for Australia. This would not accommodate provision of paraffinic diesel to some specific customers who intend to purchase and use 100% paraffinic diesel as enabled by OEM approval of their equipment compatibility.
- Complexities in storage/handling/labelling requirements with respect to flammable vs combustible classifications. i.e. flash point dropping below 61.5°C. bp wants to be able to manufacture and procure paraffinic diesel which meets the EN15940 standard. To fully utilize all paraffinic diesel which meets the EN15940 standard, there will be times when the paraffinic diesel has a flash point between 55.0°C and <61.5°C. Using this paraffinic diesel as blend stock with mineral diesel blend stock which has a flash point of 61.5°C will result in a final blended diesel with a flash point below the 61.5°C minimum of the Automotive Diesel standard.
- Time to activation, where we expect a longer timeline required to re-write the existing diesel specification than to produce a new stand-alone specification, thereby further delaying the uptake by consumers wanting to make immediate reductions to their lifecycle greenhouse emissions.
- Future reviews and updates in paraffinic diesel and blends would be slowed/complicated by having to consider integration with mineral diesel specifications.
- Low density diesel may not be compatible with all vehicles in the Australian car parc. If low density is embedded into the Automotive Diesel standard, low density diesel sold as diesel may not flag to customers the potential of vehicle incompatibility.

Given these reasons, bp does not support Option 1.

Further justifications for our support of Option 2 are outlined under Question 5.

Notwithstanding our support for Option 2 we note that Figure 2 under Option 1 raises an opportunity that should be explored in the Automotive Diesel standard regarding minimum density and FAME content. While this is not a response to one of the 11 Questions raised by the Department, bp would like to raise this opportunity here. bp does not want this opportunity to delay or distract from the implementation of the paraffinic diesel standard, and if this is the case this opportunity should be considered a separate piece of work

outside of the current process for establishing the paraffinic diesel fuel standard. This would be in addition to, but not an alternative to Option 2.

If the Department is open to include this, bp's recommendations are as follows:

- bp recommends the Department consider an adjustment to the minimum density in the Automotive Diesel standard to support the supply of Paraffinic Diesel blends to retail customers, which are well within the operating requirements set by Original Equipment Manufacturers. In Europe the EN590 diesel standard allows a minimum density of 800kg/m^3 for use in severe winter conditions. Opening the large retail market would help build scale for local producers and suppliers.

- A minimum density of 809 kg/m^3 in the Australian Automotive Diesel standard would accommodate a blend of 20% paraffinic diesel at minimum density 765kg/m^3 with Automotive Diesel fuel at minimum density of 820kg/m^3. This change would facilitate expansion of paraffinic diesel supply into the general market without additional considerations needing to be made by consumers.

Question 4: *What should the minimum density limit be for paraffinic diesel in Australia and why?*

765kg/m^3 for neat paraffinic diesel to align with EN15940. It is possible that bp's Renewable Fuels Project in Kwinana and potentially other manufacturers will occasionally produce paraffinic diesel below this density e.g. as low as 750kg/m^3 due to different production conditions and feed sources. Where there is customer demand for neat paraffinic diesel with density below 765kg/m^3, bp will seek a Section 13 variation. Low density paraffinic diesel should still be available to the paraffinic diesel supply pool as paraffinic blend stock for blending with mineral diesel blend stock to product a finished product which is compliant with the indicative Appendix D, Table 4 paraffinic blend standard.

Question 5: *What are the advantages and disadvantages of creating a standalone paraffinic diesel standard?*

Advantages

1. Does not impact the existing Automotive Diesel standard, so diesel suppliers and consumers would not be impacted by the introduction of the new paraffinic diesel standard if paraffinic diesel does not form part of their supply/consumption model.
2. Simplifies commercial contract specifications between manufacturers, suppliers and bulk consumers for supply of paraffinic diesel and paraffinic-mineral diesel blends.
3. A neat paraffinic diesel standard (as example Appendix C)
    - Is more easily reviewed by OEM's when considering vehicle/equipment compatibility by comparing to EN15940.

- Enables supply of neat renewable diesel as a discrete product to those consumers wanting to maximise their lifecycle GHG reduction.
- Provides supplier certainty of compliance to facilitate scaling up production, purchasing and supply chains.
- Is more easily reviewed and amended if not embedded in the Automotive Diesel standard.

4. A paraffinic-mineral diesel blend standard (as example Appendix D)
    - Provides flexibility in blend ratios to accommodate the variety of blends under consideration by commercial scale consumers in accordance with their individual climate change ambitions.
    - Is more easily reviewed and changed if not embedded in the Automotive Diesel standard.
    - If the paraffinic diesel component of blended fuel is not required to meet the neat paraffinic diesel standard (as stated in EN15940), a standalone blend specification for blends provides an additional option to mitigate cost of supply via either blending locally or importing pre-blended fuel.
    - To allow maximum flexibility in blending paraffinic and mineral diesel, these two components should be considered blend-stocks. With the final blended product meeting the paraffinic diesel blend standard (indicative Appendix D Table 4), removing the first two bullet points under Table 4 appendix D will give maximum flexibility to bp to blend in certain circumstances paraffinic diesel and/or mineral diesel blend stocks which do not meet their respective specifications. Refer to bp's recommendations for Appendix D under "Other comments", section 3.

Disadvantages

1. bp sees no disadvantage in creating a standalone paraffinic diesel standard.

Given reasons above, bp supports Option 2.

Questions 6: *Should a standalone paraffinic diesel standard follow the specifications of the European standard EN 15940 or another standard? Why? (See indicative specifications for comment at Appendix C.*

EN 15940 is the only international paraffinic diesel standard available.

A standalone paraffinic diesel standard closely aligned with EN15940 should apply to paraffinic diesel to be consumed neat, but should not apply to paraffinic diesel blend-stock to be used as a blend component with mineral diesel. EN 15940 states *"Paraffinic diesel fuel is also used as a blending component in automotive diesel fuel. In that case it does not have to meet EN 15940 requirements since composition and properties of diesel fuel blends are defined in the respective automotive diesel fuel standards, e.g. EN 590."*

An Australian-specific neat paraffinic diesel specification that is more restrictive than EN15940 will add to the cost of sourcing "niche" product, thereby increasing supply costs and reducing uptake and should be avoided.

To maximise uptake by minimising supply costs, an Australian paraffinic diesel standard should be based on EN15940 but be less restrictive for properties that would otherwise exclude potential international supply sources and local manufacturers.

Specifically in the indicative neat paraffinic standard (Appendix C, table 3), bp recommends the following improvements:

1. Relaxation of FAME [Biodiesel] content from 5.0%(v/v) (Appendix C proposed specification) to 7% (v/v) (per EN15940)

Justification: Potential consumers of neat paraffinic diesel are likely to have OEM approval to use fuel meeting EN15940 (including 7% FAME). A standard should not unnecessarily cap allowable FAME at 5% if the OEMs have approved up to 7%. The proposed 5% cap unnecessarily reduces the scope for supplying lower emissions fuel to Australian users, including locally manufactured FAME.

2. Relaxation of total aromatics from 1.1%(m/m) (per Appendix C proposed specification and EN15940) to 1.7%(m/m).

Justification: Very low aromatics (≤1%) can be achieved by many manufacturers, but some processing conditions result in paraffinic diesel with up to 1.7% aromatics. This modest difference needs to be seen against the benefits of promoting uptake of paraffinic diesel, including replacing automotive diesel which has much higher levels of aromatics. Total aromatics in the Australian diesel market range from 10% to 35%, so any mineral diesel displaced by paraffinic diesel results in a reduction in net aromatics combusted.

3. Sulphur content maximum should be increased from 5.0mg/kg maximum to 10mg/kg maximum

Justification: ASTM D5453 is the reference test method for sulphur in the Australian diesel standard (set at 10kg/kg maximum) and is the logical option for paraffinic diesel and blends. At 5mg/kg this method reproducibility is +/-1.9 mg/kg. This means two different laboratories could measure the same sample and obtain results that differ by up to 1.9mg/kg. This natural range of statistical variability will inevitably result in a batch certified at 5mg/kg measuring 6 or 7 mg/kg on subsequent testing. This risk places an unnecessary burden on suppliers having to "correct" such product back to meeting the 5mg/kg limit, risking supply security and continuity. The limit of 5.0 should be increased to align with the current diesel fuel quality standard limit of 10mg/kg. This would have no impact on any measurable criteria and brings retesting risks in line with current diesel practises.

4. Quality requirements of included Biodiesel per bullet point trailing Table 3 *"Any biodiesel component of paraffinic diesel must meet the requirements of the fuel quality standard for biodiesel set out in the Fuel Quality Standards (Biodiesel) Determination 2019."* should make allowance for biodiesel entrained in imported paraffinic diesel to meet Fuel Quality Standards (Biodiesel) Determination 2019, or international biodiesel standards (EN14214) or ASTM D6751

Justification: Biodiesel (FAME) poses a different product quality risk compared with paraffinic diesel, therefore compliance of blend component biodiesel to the existing Australian

biodiesel standard is recommended. However, any biodiesel present in internationally-procured Paraffinic diesel meeting EN15940 will not have been certified to the Australian biodiesel standard which differs from the European biodiesel standard (EN14214) as required in EN15940 or ASTM D6751. Therefore an allowance is required for biodiesel already included in internationally sourced paraffinic diesel to meet the requirements of EN14214 or ASTM D6751 as an alternate to the Australian biodiesel standard. See also question 10.

5. Include a second test method option and limit for "Oxidation stability for all paraffinic diesel with >2%vol FAME". bp assumes the Department intends the "20 hours minimum" refers to testing by test method EN15751 as per EN15940.

Justification: the "20 hours minimum" limit by test method EN15751 (assumed) aligns with EN15940 and facilitates import to Australia of paraffinic diesel containing more than 2% FAME tested to the EN15940 trading specification. This is appropriate. bp requests an alternate test method and limit be allowed for certification of paraffinic diesel blended locally with Australian produced FAME. bp recommends a limit of "8.0 hours minimum" by method EN14112 for paraffinic diesel containing FAME added locally, to align with the Australian Biodiesel standard and local testing capabilities. bp further proposes the FAME-related oxidation stability testing be required when the paraffinic diesel contains ">2" vol% FAME (instead of ">2.0" vol% FAME), consistent with the number of significant figures in EN15940.

bp summarizes specific feedback on indicative Appendix C and Appendix D specifications under "additional comments".

Question 7: *Are there benefits in having two classes of paraffinic diesel with different densities and cetane ratings per the European standard EN 15940?*

bp does not see any benefit to two classes of paraffinic diesel. The two classes in EN15940 accommodate different production mechanisms producing respectively high-cetane and normal-cetane fuel, both of which are adequate for Australian conditions. Australian warm weather negates the need for high cetane paraffinic diesel. bp supports the Department's suggestion of a single class of paraffinic diesel to be consumed neat, with a single density range (765-810kg/m^3) and single cetane number (51 minimum).

Question 8: *If the Government created a paraffinic diesel standard, what would be the best way to regulate paraffinic diesel/mineral diesel blends?*

Low blends of paraffinic diesel into mineral diesel (e.g. 5%) will in most cases result in blends that fully satisfy the Automotive Diesel standard. Blends approaching 20% paraffinic diesel and higher will not meet the Automotive Diesel standard and require a standalone standard to promote supply and uptake without the need for section 13 variations against the Automotive Diesel standard.

bp supports Option 2 i.e. a blend standard largely aligned with the indicative specifications listed in Appendix D, Table 4, with some modifications as listed under "Other comments, section 4".

bp does not support the proposed requirement for both the blend components (i.e. mineral and paraffinic) to meet their individual standards (refer Appendix D table 4 bullet points 1 and 2). This requirement would create additional complexity and costs to product sourcing, certification, storage, handling and supply, thereby reducing potential uptake, and create unnecessary risks to supply continuity. Compliance of the final blend with the indicative paraffinic diesel blend standard should be the primary control that ensures the quality of the final fuel and provides a point of reference for regulators and contracts. For comparison, mineral diesel produced at refineries is typically a combination of multiple blend components, none of which are required to be individually certified to a standard. Paraffinic diesel is a hydrocarbon blend component that can be blended with other hydrocarbon blend components to deliver compliant final blended product.

Comparing paraffinic diesel with other fuel blend components such as ethanol or FAME, where regulation of blend component quality is required, is not valid. Both ethanol and FAME are chemically different from the hydrocarbon base fuel component and require regulation to ensure their unique chemical compositions do not cause quality issues in the final fuel. The paraffinic blend stock is a hydrocarbon, like other mineral diesel components, and only requires blending with other mineral diesel components by manufacturers to meet the regulatory properties as is currently the case for Automotive Diesel.

EN15940:2023 (E) states *"Paraffinic diesel fuel is also used as a blending component in automotive diesel fuel. In that case it does not have to meet EN 15940 requirements since composition and properties of diesel fuel blends* are specified in the respective automotive diesel fuel standards, e.g. EN 590 and EN 16734". In Australia then, paraffinic diesel being used as a blend component should not be required to meet mandatory paraffinic diesel standard in addition to the final blend meeting the indicative specifications of Appendix D.

Similarly mineral diesel being used as a blend component should not be required to meet mandatory "Automotive Diesel" standards since this would not be the product being supplied to consumers. The finished blended fuel must meet the indicative specifications of Appendix D.

As per current diesel supply, importers/manufacturers/blenders should operate quality assurance and product quality certification processes to ensure final blended product meets the requirements of the applicable standard.

Question 9: *What should the minimum flash point be for paraffinic diesel in Australia and why? What would the implications be if the minimum flash point of paraffinic diesel aligned with the European minimum at 55°C?*

The flash point of paraffinic diesel should be aligned with EN15940 (above 55.0°C).

EN15940 is the reference specification for international trading of paraffinic diesel. Alignment with this standard will ensure ready access to global supply of paraffinic diesel

and avoid a de facto Australian price premium that would be applied if minimum flash point was regulated at a more restrictive level than trading specifications.

bp supports the *"above 55.0°C"* limit for neat paraffinic diesel proposed in Appendix C table 3. bp also supports *"above 55.0°C"* for the paraffinic diesel blend standard (Appendix D).

Depending on the properties of paraffinic diesel blend-stock and mineral diesel blend-stock, many blends will meet the Automotive Diesel standard including for flash point (61.5°C minimum) and would be handled and stored as per Automotive diesel. Paraffinic diesel, and paraffinic diesel blends with flash points below 60.5°C would need to be handled as a flammable product (similar to Jet A-1).

bp accepts that any fuel grade with a flash point below 60.5°C will require transport, storage and handling as a flammable product under Australian Standard AS1940 and the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code). If a reseller, distributor or customer is unable to comply with AS 1940 for paraffinic diesel or paraffinic diesel blend with a flash point below 61.5°C, the supplied product will need to meet the customers' requirement/specification for flash point and can be defined in the supply contract. bp believe that there should be no dispensation to flash point minimum in the Automotive Diesel standard as this is a general consumer fuel standard.

Question 10: *What should the maximum FAME content of paraffinic diesel be? Would increasing the maximum FAME content to 7% lead to any vehicle operability or storage issues?*

The maximum FAME content of paraffinic diesel in Australia should be aligned with European standards. As noted above, as far as possible, Australia should avoid setting unnecessary local regulatory requirements which will restrict sources of supply and impose a price premium on local users. The inclusion of FAME can be beneficial to the characteristics of paraffinic diesel by increasing density and reducing lubricity (wear scar). Maximising the allowable inclusion of FAME increases the opportunity for total biofuel uptake including locally manufactured FAME.

For neat paraffinic diesel per Appendix C, maximum FAME content in Australia should be aligned with EN15940 at 7% maximum. Potential consumers of neat paraffinic diesel likely have OEM approval to run on fuel meeting EN15940 which allows for up to 7% FAME. An Australian standard should not unnecessarily limit FAME to 5% if OEM's have approved up to 7%.

For paraffinic diesel blends per Appendix D, FAME content should also be set at 7% maximum. This aligns with the European diesel standard limit of 7% basis OEM approval for a wide range of commercial and passenger vehicles.

Fuel suppliers and many commercial consumers are already familiar with storage and handling of diesel, FAME, and diesel-FAME blends, and the difference in quality risks of B5 and B7 storage at retail sites are inconsequential and well understood by the industry.

BP further supports that the limits be defined as 7% maximum rather 7.0% maximum.

Question 11: *Should labelling requirements similar to the European standard EN 15940 be used or are there other labelling requirements appropriate for Australia?*

The starting principle should be that any labelling requirements allow consumers to identify the correct fuel and make an informed decision regarding the suitability of that fuel in their vehicle. This requires a consistent labelling system agreed between retailers and vehicle manufacturers.

Labelling should be based on the applicable fuel standard, not basis any "renewable" credentials. Where the fuel does not meet the Automotive Diesel standard it should include a compatibility warning, for example "Not suitable for all vehicles; consult vehicle manufacturer or check manual before use."

European vs Australian labelling

"XTL" is the European labelling for unblended paraffinic diesel meeting the requirements of EN15940. The label XTL comes from "X-To-Liquid" where X is a catch-all for different paraffinic diesel feedstock, including renewable sources (biomass-to liquid and HVO) or fossil origin (gas-to liquid, coal-to liquid). The XTL label differentiates paraffinic diesel from other diesels retailed under the European diesel standard EN590, but applies only to unblended paraffinic diesel from combinations of XTL fuels (including up to 7% FAME). That label does not include paraffinic-mineral diesel blends.

European paraffinic diesel blends are required to meet the EN590 diesel standard (creating a de-facto blend limit on the paraffinic component to meet the diesel density specification) so are labelled as diesel according to the FAME content (e.g. B7). This blend labelling will not translate into the Australian context (Automotive Diesel is not labelled per the FAME content which ranges from 0 to 5.0%) where the intent is to enable maximum renewable diesel uptake especially through commercial customers (B2B) wanting to use high blend ratios.

A consistent labelling approach for neat paraffinic diesel and for paraffinic blends that do not meet the Automotive Diesel standard will need to be agreed across industry with input from vehicle importers and fuel retailers. As examples, XTL100 for neat paraffinic diesel, and XTL20 / XTL30 for 20% and 30% paraffinic diesel blends respectively may provide simple product differentiators from Automotive Diesel.

Labelling for closed supply chains

In the short term, paraffinic diesel and paraffinic diesel blends are most likely to be sold under agreed contracts to business customers in closed supply chains. Such sales would not be to the public and therefore labelling would be as required by the customer's internal supply chain.

Labelling for general public supply

Where neat paraffinic diesel is supplied through public forecourts, it must be differentiated as a unique product (XTL may be suitable) with associated vehicle compatibility warning as above.

Where paraffinic diesel blends supplied through public forecourts meet the Automotive Diesel standard, no additional labelling related to its paraffinic component is required. Likewise no compatibility warning is required since the product is Automotive Diesel. This is likely to be the case for low blend ratios and provides an entry point for paraffinic blendstock to enter the public market.

Where paraffinic diesel blends supplied through public forecourts do not meet the Automotive Diesel standard, labelling related to its paraffinic component and a compatibility warning is required. This is likely to be the case for higher blend ratios (~20% or more paraffinic blend-stock) where the blend density is lower than the Automotive Diesel minimum density of 820kg/m^3.

Other comments

1: Diesel total aromatics

The aromatic content of diesel is known to have impact on elastomeric materials present in fuel distribution networks and vehicles. Very low aromatics (as in neat paraffinic diesel) may cause seal shrinkage and leakage in vehicles not designed to operate on paraffinic diesel. Consumers should obtain Vehicle OEM approval to use neat paraffinic diesel to avoid potential issues.

Total aromatics is not regulated in the current Australian Automotive Diesel standard (only a maximum on poly-aromatics is listed). Fuel suppliers are conscious of the risk of aromatics lower than market conditioning, so apply internal controls to supply diesel with sufficient aromatics to not cause marketplace issues. Combinations of paraffinic-mineral diesel blend ratios and aromatic content of the mineral diesel portion may result in blends with aromatic content lower than regional conditioning limits. Fuel suppliers will need to monitor and control this outside the scope of the fuel standard, as is currently done with mineral diesel. Applying a minimum total aromatics to paraffinic-mineral diesel blends through a fuel standard may create an undesirable blend wall thereby reducing the blending potential especially for commercial customers who are the more likely consumers of high-blend diesel.

2: Comments on Appendix C (neat paraffinic diesel)

This should apply only to paraffinic diesel to be consumed neat, not to paraffinic diesel to be used as a blending component with mineral diesel.

There is an unnecessary use of significant figures to define specification points, for example sulphur 5.0 vs 5, manganese 2.0 vs 2, FAME 5.0 vs 5 and kinematic viscosity 2.000 – 4.500 vs 2.0 – 4.5. There are no measurable benefits to vehicle emissions, customers or OEMs from the extra significant figures but a substantial burden of quality complexity and risk for manufacturers and blenders. Reducing these significant figures would facilitate supply quality activities, reduce complexity with no material impact on product quality, customer utility, and equipment operability or emissions reductions. bp recommends that the Department consider aligning the number of significant figures with those already expressed for comparable limits in the existing FQSA fuel standards.

bp proposes:

Parameter	Appendix C proposed	bp proposes	Justification
Density at 15°C	765.0 – 810.0 kg/m^3	765 – 810 kg/m^3	significant figures
[Kinematic] Viscosity at 40°C	2.000 – 4.500 mm^2/s	2.0 – 4.5 mm^2/s	significant figures
FAME [Biodiesel] content	5.0% (v/v) maximum	7% (v/v) maximum	See Question 10 and significant figures
Manganese content	2.0 mg/L	2 mg/L	significant figures
Total aromatics content	1.1% (m/m)	1.7% (m/m)	See Question 6
Oxidation stability for all paraffinic diesel with >2 vol% FAME content	20.0 hours minimum [bp assumes the Department intends this be tested by test method EN15751]	20.0 hours minimum by EN15751 OR 8.0 hours minimum by test method EN14112	See question 6
Sulphur content	5.0 mg/kg	10 mg/kg	See Question 6

3: Comments on Appendix D (paraffinic-mineral diesel blends)

This specification should apply to the final blended product that will be consumed. As such the bullet points at the end of the table requiring blend components to respectively meet a paraffinic diesel and mineral diesel specification are unnecessary and create additional administrative, certification and logistical cost of product. bp proposes the following bullet points be removed:

"*Any paraffinic diesel component of blended diesel fuel must meet the requirements of an Australian paraffinic diesel standard.*

Any automotive diesel component of diesel must meet the requirements of the fuel quality standard for automotive diesel set out in the Fuel Quality Standards (Automotive Diesel) Determination 2019."

Third bullet point to be revised to "Any biodiesel component of diesel must meet the requirements of the fuel quality standard for biodiesel set out in the Fuel Quality Standards (Biodiesel) Determination 2019, or EN14214 or ASTM D6751." Refer to Question 6.

bp proposes:

Parameter	Appendix D proposed	bp proposes	Justification
Derived cetane number (for blends with 20-99% paraffinic diesel	51 minimum	46 minimum	Cetane index should be set at 46 minimum for all blends. As consistently advocated by the AIP, cetane index above 46 is not necessary in Australia's warm climate, and there is no performance benefit to cetane values above the minimum required. Also, a blend of 20% EN15940 compliant paraffinic diesel (at 51 cetane) and 80% compliant Automotive diesel at 46 cetane will not meet the 51 minimum proposed.
Density at 15°C	765.0 – 850 kg/m^3	765 – 850 kg/m^3	significant figures
[Kinematic] Viscosity at 40°C	2.000 – 4.500 mm^2/s	2.0 – 4.5 mm^2/s	significant figures
FAME [Biodiesel] content	5.0% (v/v) maximum	7% (v/v) maximum	See Question 10 and significant figures
Oxidation stability for all paraffinic diesel with >2 vol% FAME content	20.0 hours minimum [bp assumes the Department intends this be tested by test method EN15751]	8.0 hours minimum by test method EN14112	8.0 hours minimum by test method EN14112 aligns with the test method and limit specified in the Fuel Quality Standards (Biodiesel) Determination.