

In Confidence

Office of the Minister of Energy and Resources

Chair, Cabinet Economic Growth and Infrastructure Committee

Updating New Zealand's Engine Fuel Specifications

Proposal

- 1 This paper proposes amendments to the *Engine Fuel Specifications Regulations 2011* (Regulations).

Executive Summary

- 2 The Regulations provide comprehensive transport fuel specifications. They set out minimum standards for fuel performance, enabling consumers to purchase fuel appropriate for New Zealand's vehicle fleet and climatic conditions. They also limit fuel components that could be harmful to the environment or public health.
- 3 The specifications provided in the Regulations reflect a continual balancing of costs and benefits and have largely evolved in step with international developments in vehicle technology and fuel supply.
- 4 Through monitoring international developments and engagement with stakeholders, officials have identified some changes to the Regulations that could provide net benefits to consumers in terms of health and environmental outcomes, security of supply and potential reduction in costs.
- 5 A public discussion document was released in September 2015 proposing changes to the Regulations and 14 submissions were received from fuel and motor industry-related stakeholders. Targeted engagement occurred with submitters on an issue-by-issue basis following this.
- 6 Following consideration of stakeholder feedback, I am recommending a package of amendments to the Regulations, including:
 - 6.1 Four significant changes, three that relax some specifications to improve fuel supply choice and enable market-led innovation in the fuel mix; and one to lock in an existing reduction in harmful emissions.
 - 6.2 Fourteen minor and technical amendments to provide technical clarification, update test methods to match improvements in technology and align them with international best practice, and/or to consequentially amend the four significant changes.
- 7 Overall, the package of proposed amendments will provide a net benefit to consumers in terms of health and environmental outcomes, security of supply and potential reduction in costs.
- 8 Key stakeholders have been well briefed throughout this process and are broadly supportive of the proposed changes. There was universal support for the

minor/technical changes proposed. Some fuel suppliers have already commenced contracting supplies on the basis that the proposed changes – both significant and technical - have already been made.

Background

- 9 The Ministry of Business, Innovation and Employment (the Ministry) is responsible for administering the Regulations which provide comprehensive fuel specifications for petrol, ethanol, petrol/ethanol blends, diesel, biodiesel and diesel/biodiesel blends.
- 10 The Regulations set out minimum standards with respect to the performance of fuel, enabling consumers to purchase fuel to a quality standard appropriate for New Zealand's vehicle fleet and climatic conditions. They also include provisions limiting fuel components that could be harmful to the environment or public health.
- 11 In 2015, 62 per cent of New Zealand's petrol and 75 per cent of its diesel demand was supplied by the country's sole refinery at Marsden Point near Whangarei. The remainder of the country's demand requirements are met via imports from refineries around the Asia-Pacific region. Most biofuels are domestically produced.
- 12 The specifications provided in the Regulations reflect a continual balancing of costs and benefits to provide as much flexibility as possible to fuel suppliers within appropriate environmental, public health and consumer protection constraints. It is also important that our specifications are aligned where possible with requirements of vehicle manufacturers and with fuel specification norms. The Regulations have largely evolved in step with international developments in vehicle technology, and fuel supply in New Zealand.
- 13 New Zealand's fuel specifications have been tightened substantially since 2001/02. This has reduced harmful emissions from vehicles and enabled the uptake of the newest and cleanest vehicle technologies, but in some instances has also made it more difficult and costly for refineries to produce fuel that meets the specifications.
- 14 Through monitoring of international developments and engagement with stakeholders the Ministry identified a number of changes to the Regulations that could result in net benefits, and accordingly initiated a review.
- 15 The objectives of the review were to:
 - 15.1 improve environmental and public health outcomes by reducing harmful vehicle emissions and improving air quality;
 - 15.2 enable new cleaner vehicle technologies;
 - 15.3 provide an adequate level of consumer protection by ensuring that fuel that is fit for purpose can be supplied to consumers; and
 - 15.4 provide as much flexibility as possible to fuel suppliers within appropriate environmental, public health and consumer protection constraints (i.e. an "open specification"). This flexibility will help achieve one or several of the following outcomes:

- 15.4.1 enhanced security of supply as fuel can be sourced from a wider range of refineries;
- 15.4.2 minimisation of costs to consumers as the premium paid by fuel suppliers relative to the international benchmark is likely to be lower if there is a wider potential supply pool; and
- 15.4.3 promote the Government's objectives around biofuels uptake where this is technically and commercially viable. Increased sales of biofuels can help contribute to the Government's broader greenhouse gas emission abatement goals.

Proposals

- 16 It is proposed that the following amendments to the Regulations be made:
 - 16.1 reduction in the maximum allowable sulphur content in petrol;
 - 16.2 introduction of a total oxygen limit for petrol blends;
 - 16.3 introduction of a new parameter for petrol blended with methanol; and
 - 16.4 increasing the maximum allowable biodiesel blend limit in diesel sold by retailers.
- 17 Stakeholders had a variety of views on the changes, but some are now operating on the basis that the proposed changes are made as recommended. There are no standout issues, with accommodations made to the original proposals to allay some stakeholder concerns. Specifically, I propose delaying the implementation of the proposal to reduce the maximum allowable sulphur level in petrol to 1 July 2018, and to introduce a labelling requirement for petrol/methanol blends and for biodiesel blends above 5 per cent similar to that which currently applies for petrol/ethanol blends.
- 18 With the exception of the change to the maximum allowable sulphur content in petrol, the changes are largely enabling provisions that increase choice and flexibility, rather than require industry participants to make changes.
- 19 It is also proposed that some minor and technical amendments to the Regulations be made to provide technical legal clarification, update test methods to match improvements in technology and align them with international best practice, and/or to consequentially amend the four significant policy decisions.

Recommended changes to the Regulations

Reducing the maximum allowable level of sulphur in petrol from 50 parts per million (ppm) to 10 ppm

- 20 Sulphur promotes corrosion and affects the performance of vehicle control equipment. In order to improve air quality and encourage the uptake of the newest, most efficient vehicles, New Zealand has been progressively reducing sulphur levels since 2001. The move from 50 ppm to 10 ppm, known as ultra-low sulphur or sulphur free petrol, is the last step and was signalled as early as the 2001 review of the Regulations. New Zealand's sole refinery at Marsden Point already produces 10 ppm petrol. The proposed change would result in no investment requirements for Refining NZ.

- 21 The harmful air emissions that arise from the combustion of sulphur in petrol include oxides of nitrogen, particulate matter, sulphur oxides, volatile organic compounds and carbon monoxide. These emissions result in social costs such as premature mortalities, hospitalisations and restricted activity days. Ultra-low sulphur petrol is considered a pre-requisite for the introduction of the most recent vehicle exhaust emissions standards (such as Euro 6 from Europe) and is also recommended for the newest most efficient vehicles.¹
- 22 Evidence suggests that, on average, the market has already moved to supply low sulphur petrol.² However, there is no certainty that the public health and environmental benefits that have already occurred as a result of the market effectively moving to 10 ppm sulphur petrol will continue. It is prudent to lock in these public health and environmental benefits while also providing further encouragement for the uptake of the most efficient Euro 5/6 vehicle technology. I recommend reducing the maximum allowable level of sulphur in petrol from 50 ppm to 10 ppm.
- 23 The discussion document proposed a 1 July 2017 implementation date. While all submitters, with the exception of one, agreed with the proposal to reduce sulphur levels to 10 ppm, a minority of submitters were concerned about a reduced supply pool and favoured a longer timeframe before implementation, with suggestions ranging from 1 January 2018 to 1 July 2020. At present, Japan, South Korea and Taiwan require 10 ppm petrol. China (2017/18), Singapore (2017), and Vietnam (2021) have confirmed plans to move to 10 ppm petrol. Most of New Zealand's petrol requirements are met domestically from the refinery at Marsden Point which is already 10 ppm compliant. The balance of imports is sourced principally from South Korea and Singapore. Once Singapore moves to 10 ppm petrol in 2017, there should be ample quantities of 10 ppm petrol available in the Asia-Pacific region to meet New Zealand's import requirements.
- 24 In order to mitigate any residual concerns around a reduced supply pool supply, I propose an implementation date of 1 July 2018.³ Fuel suppliers are already entering into supply contracts for 10 ppm petrol based on a 1 July 2018 implementation date.
- 25 There may be a small incremental cost to consumers from this measure estimated at between 0.26 cents per litre and 2.5 cents per litre. These costs reflect the incremental costs to refineries of producing a higher grade product. As a globally traded product, all petrol sold in New Zealand is benchmarked against the international price of 10 ppm petrol in Singapore. I am advised that a reasonable estimate of an upper limit is in the order of 0.57 cents per litre which would amount to \$14.3 million per annum across all petrol sold in New Zealand. However, these costs will likely decline over time as additional supply of 10 ppm petrol enters the Asia-Pacific market in the same way that diesel has. (The incremental cost of 10 ppm sulphur diesel relative to 50 ppm sulphur diesel has declined from 0.48 cents per litre in 2009 to 0.23 cents per litre in 2015)

Introducing a total oxygen limit

- 26 Oxygenates are added to petrol as a blending component and to increase octane. Added to petrol, oxygenates promote better and cleaner burning of the fuel in engines, thereby reducing toxic tailpipe emissions, particularly carbon monoxide. Oxygenates

¹ The Ministry of Transport is expected to review the need for further vehicle exhaust emissions standards, including Euro 6, later in 2016.

² Representative samples of petrol sold in New Zealand collected by the Trading Standards unit within the Ministry for the 2014/15 year show an average level of 7.9 ppm.

³ This altered proposal is not expected to affect the timing of any decisions on the introduction of tighter emissions standards for vehicles in New Zealand.

also dilute or displace harmful petrol components such as aromatics and sulphur as well as optimize the oxidation during combustion.

- 27 The primary oxygenates are ethers and alcohols. Ethers include methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), and tertiary amyl methyl ether (TAME) while alcohols include ethanol, methanol and tert-butyl alcohol (TBA).
- 28 In most jurisdictions against which New Zealand benchmarks itself, individual oxygenates are capped by a total oxygen limit as well as prescribing limits for individual oxygenates. This allows fuel suppliers to use a range of different oxygenates, thereby providing flexibility and potentially reducing costs to consumers. New Zealand has no such specification for total oxygen and instead has a 10 per cent limit for ethanol and a 1 per cent limit for “other oxygenates”. A 10 per cent limit for ethanol is equivalent to a total oxygen limit of 3.7 per cent mass. There are a range of other oxygenates which could be added to petrol within this limit of 3.7 per cent mass but which are currently capped at a 1 per cent limit. In this regard, our specifications for oxygen are tighter than any other jurisdiction against which New Zealand compares itself. This means that fuel suppliers have a relatively small pool of refiners from which they can source petrol to supply New Zealand and our tight specification potentially increases the cost of petrol for consumers.
- 29 I propose introducing a total oxygen limit of 2.7 per cent mass for petrol blends that have a maximum ethanol content of 5.0 per cent, and 3.7 per cent mass for petrol blends that have a maximum ethanol content of 10.0 per cent. This will require removal of the current parameter of 1 per cent volume for ‘other oxygenates’. The existing methyl tertiary butyl ether specification will remain the same at a maximum of 1 per cent volume. It is proposed methanol obtains a separate limit, which is discussed below.
- 30 This proposal is consistent with the European fuel standard and will increase flexibility and choice for fuel suppliers allowing a potential reduction in cost for consumers. It will potentially allow other alcohols, such as propanol and butanol, and ethers, such as ETBE and TAME, to be added to the petrol mix in volumes above the existing cap of 1 per cent volume.

Introducing a limit of 3.0 per cent volume for methanol (up from 1.0 per cent volume currently)

- 31 Methanol is an oxygenate and blended in petrol to enhance octane. Its use is currently restricted to 1 per cent volume, which in effect means no methanol/petrol blends are sold in New Zealand. This is particularly restrictive when compared to the fuel standards that apply in Australia, Europe and the United States. This restriction results in a reduced supply pool and therefore potentially higher costs to consumers.
- 32 The potential benefits of methanol petrol blending include improved environmental outcomes from reduced emissions (such as particulate matter, greenhouse gas emissions, et cetera), greater energy diversity and security of supply (methanol is produced in New Zealand and can displace imports) and lower costs to consumers (approximately \$15 million based on 2014 figures).
- 33 However, the use of methanol is not supported by New Zealand representatives of vehicle manufacturers, notwithstanding its use in Europe and the United States. The manufacturers argue that it is an aggressive fuel that increases wear on engine

components, reduces the service lives of injectors, increases the risk of phase separation,⁴ and can adversely affect an engine's starting performance.

- 34 I am advised that these risks can be mitigated through the use of corrosion inhibitors and co-solvents, while waivers around the vapour pressure requirements (as are provided for in ethanol petrol blends) can address the cold start performance concerns. These measures help to reduce the concerns raised by New Zealand representatives of vehicle manufacturers, although their preference remains that methanol not be blended with petrol.
- 35 I propose allowing a maximum of 3 per cent volume methanol to be blended into petrol. This will bring New Zealand's fuels specification for methanol in line with the European fuel standard. This is an enabling provision that increases choice and flexibility; there will be no requirement for any fuel supplier to sell methanol petrol blends. Seven of the eleven submitters who responded to this proposal either supported, or were at least neutral to this proposal.
- 36 The methanol component of any blend of petrol and methanol must contain a corrosion inhibitor and a co-solvent (such as ethanol). Waivers for the flexible volatility index and maximum vapour pressure will be provided along the same lines as those currently provided for petrol blended with ethanol above 1 per cent volume. Likewise, the same labelling requirements for petrol blended with ethanol above 1 per cent volume would also apply to petrol blended with methanol above 1 per cent volume. The labelling requirement also helps to allay the concerns raised by some submitters.

Increasing the biodiesel blend limit in diesel from 5 per cent to 7 per cent volume

- 37 The Government has a policy of promoting biofuel uptake where this is commercially viable and technically feasible. Biodiesel replaces the use of fuels which produce greater carbon emissions.
- 38 The Regulations currently allow biodiesel to be blended into diesel up to a maximum of 5 per cent. I propose increasing these blend limits to 7 per cent, which is the same limit as in the European fuel standard.
- 39 The principal benefits of the proposal are a reduction in greenhouse gas emissions and a slightly more diverse and secure energy supply.
- 40 Stakeholder feedback from representatives of vehicle manufacturers did not endorse a 7 per cent blend limit because of vehicle operability concerns from some vehicle manufacturers. After discussions, these concerns were allayed by a proposal to introduce a labelling requirement for biodiesel blends of more than 5 per cent. This labelling requirement would be similar to that currently in place for petrol with an ethanol content of more than 1 per cent.
- 41 Oil companies generally supported the proposal, but some noted that vehicle support would be required in order for this proposal to be viable.

⁴ Phase separation can occur when petrol containing even small amounts of methanol comes in contact with water, either liquid or in the form of humidity. The methanol will pick-up and absorb some or all of that water. When it reaches a saturation point the methanol and water will phase separate and form two or three distinct layers of petrol, methanol and water in the tank. When this happens serious engine problems can occur.

- 42 I am comfortable that the vehicle operability risks cited are both manageable and tolerable. Further, these are enabling regulations; they offer increased choice rather than a mandatory requirement.

Minor and/or technical changes

- 43 I recommend that the following minor and technical amendments to the Regulations, which received universal stakeholder support, are also made. They provide technical clarification, update test methods to match improvements in technology and to align with international best practice, and/or are consequential amendments to the four significant policy decisions discussed above:
- 43.1 Clarify the definition of pool averages for aromatics in petrol to make clear that in each period of six months the sum of debits and credits must not be negative;
 - 43.2 Increase the minimum oxidation stability in biodiesel in Schedule 3 from 6 hours to 8 hours;
 - 43.3 Increase the maximum methanol content in ethanol in Schedule 4 from 0.5 per cent volume to 1.0 per cent volume.
 - 43.4 Amend “other oxygenates” in petrol to read “methyl tertiary butyl ether”;
 - 43.5 Reduce the allowable sulphur content in ethanol from 30 ppm to 10 ppm by 1 July 2018;
 - 43.6 Amend footnote 7 in Schedule 2 to read “For diesel blended with more than 1% and not more than 7% volume biodiesel, the density maximum is 854 kg/m³”;
 - 43.7 Introduce a new ethanol specification for petrol with ethanol blends of up to 85% (E85) with the following specifications:
 - 43.7.1 Acidity (as acetic acid) - 0.006% m/m maximum to be tested using ASTM D1613;
 - 43.7.2 Copper strip corrosion (3 hours at 50°C) - No. 1 maximum to be tested using ASTM D130;
 - 43.7.3 Ethanol - 70-85% v/v to be tested using ASTM D5501;
 - 43.7.4 Inorganic chloride - 1 ppm maximum to be tested using ASTM D7319 or ASTM D7328;
 - 43.7.5 Methanol – 1.0% v/v maximum to be tested using ASTM D5501;
 - 43.7.6 pHe - 6.5-9.0 to be tested using ASTM D6423;
 - 43.7.7 Silver strip corrosion - Class 1 maximum to be tested using ASTM D130;
 - 43.7.8 Solvent washed gum - 5 mg/100 mL maximum to be tested using ASTM D381;
 - 43.7.9 Sulphur - 50 ppm maximum up to 31 December 2017 and then 10 ppm maximum from 1 July 2018 to be tested using ASTM D5453 or IP 497;
 - 43.7.10 Vapour pressure (DVPE) - for regular and premium grade petrol blended with more than 70% and less than 85% volume ethanol, the

minimum vapour pressure allowed is 38 kPa and the maximum vapour pressure allowed is Auckland and Northland: 62 kPa summer; 70 kPa autumn and spring; 80 kPa winter; rest of North Island: 65 kPa summer; 75 kPa autumn and spring; 80 kPa winter; South Island: 70 kPa summer; 80 kPa autumn and spring; 85 kPa winter to be tested using ASTM D5191; and

43.7.11 Water - 1.0% m/m maximum to be tested using ASTM E203 or EN 15489.

43.8 Approve the following changes to test methods:

43.8.1 *Lead in petrol*: ASTM D5059 to be added alongside IP 224;

43.8.2 *Manganese in petrol*: BS EN 16136 to be added alongside ASTM D3831;

43.8.3 *Olefins in petrol*: ASTM D6839 to be added alongside ASTM D1319;

43.8.4 *Total oxygen in petrol*: ASTM D4815 to be added as the approved test method for total oxygen;

43.8.5 *Total contamination in diesel*: ASTM D6217 to replace IP 440 with a footnote in Schedule 2 that EN 12662 and ASTM D7321 could be applied for biodiesel blends of up to 7% depending on CEN and other reviews outcomes. The footnote reference will read "further investigation into total contamination test method to improve precision, particularly in the presence of FAME, is being carried out by CEN.";

43.8.6 *Total contamination in biodiesel*: EN 12662 to replace IP 440 with a footnote reference that reads "The test method developed for diesel fuel may show analytical problems when applied to FAME. Until a revised version of EN 12662 is developed to address the FAME issue EN 12662:2008 should be used. A more suitable test method is under development by CEN.";

43.8.7 *Density in biodiesel*: ASTM D4052 to be added alongside ASTM D1298;

43.8.8 *Oxidation stability in biodiesel*: EN 15751 to be added alongside EN 14112;

43.8.9 *Carbon residue in biodiesel*: ISO 10370 for carbon residue (on 10% distillation residue) to be removed;

43.8.10 *Phosphorous in biodiesel*: EN 16294 to be added alongside EN 14107;

43.8.11 *Group 1 metals in biodiesel*: EN 14538 to be added alongside EN 14108 and EN 14109; and

43.8.12 *Water content in ethanol*: EN 15489 to be added alongside ASTM E203.

Consultation

- 44 Public consultation was undertaken on the proposals in this paper and 14 submissions were received on a discussion document.
- 45 The Ministry of Transport, Energy Efficiency and Conservation Authority, Environmental Protection Authority, the Treasury, and the Ministry for the Environment were consulted on this paper.

Financial Implications

- 46 There are no financial implications for the Crown from the proposals in this paper.

Human Rights

- 47 There are no human rights implications from the proposals in this paper.

Legislative Implications

- 48 Implementing the recommendations in this paper will require amendments to the Regulations. It is envisaged that the Regulations will be reissued as the *Engine Fuel Specifications Regulations 2016* and would come into force 28 days after they have been gazetted. An exposure draft of the Regulations will be provided to relevant stakeholders for comment.

Regulatory Impact Analysis

- 49 The Regulatory Impact Assessment requirements apply to this policy process. A Regulatory Impact Statement has been prepared by the Ministry and is provided with this Cabinet paper.

Quality of the Impact Analysis

- 50 The Regulatory Impact Analysis Review Panel has reviewed the attached Regulatory Impact Statement (RIS) prepared by the Ministry of Business, Innovation and Employment. It considers that the information and analysis summarised in the RIS meets the criteria necessary for Ministers to fairly compare the available policy options and take informed decisions on the proposals in this paper.

Consistency with Government Statement on Regulation

- 51 I have considered the analysis and advice of my officials, as summarised in the attached Regulatory Impact Statement and I am satisfied that, aside from the risks, uncertainties and caveats already noted in this Cabinet paper, the regulatory proposals recommended in this paper:

51.1 Are required in the public interest;

51.2 Will deliver the highest net benefits of the practical options available; and

51.3 Are consistent with our commitments in the Government Statement on Regulations.

Gender Implications

52 There are no gender implications from the proposals in this paper.

Disability Perspective

53 There are no disability implications from the proposals in this paper.

Publicity

54 I intend to issue a press statement announcing the amendments to the Regulations. I also intend that this Cabinet paper and a summary of submissions be made available on the MBIE website.

Recommendations

55 It is recommended that the Committee:

- 1 **Note** that the *Engine Fuel Specifications Regulations 2011* (the Regulations) provide comprehensive fuel specifications for petrol, ethanol, petrol/ethanol blends, diesel, biodiesel and diesel/biodiesel blends.
- 2 **Note** that through monitoring international developments and engagement with stakeholders, officials have identified some changes to the Regulations that could provide net benefits.
- 3 **Note** that there has been consultation with stakeholders on the proposals and following consideration of feedback I am recommending a package of amendments to the Regulations, including:
 - 3.1 Four significant changes, three that relax some specifications to improve choice and market-led innovation in fuel mix; and one to lock in a reduction in harmful emissions.
 - 3.2 Fourteen minor and technical amendments to provide technical legal clarification, update test methods to match improvements in technology and align them with international best practice, and/or consequentially amend the four significant changes.
- 4 **Agree** to the following changes to the specification for petrol in the Engine Fuel Specifications Regulations 2011:
 - 4.1 Reduce the maximum sulphur level from 50 ppm to 10 ppm from 1 July 2018;
 - 4.2 Introduce a total oxygen limit of 2.7 per cent mass for petrol blends with a maximum ethanol content of 5.0 per cent, and 3.7 per cent mass for petrol with a maximum ethanol content of 10.0 per cent. Petrol blends with ethanol include mono-alcohols and ethers with a final boiling point no higher than 210⁰C.
 - 4.3 Remove the current parameter of 1 per cent volume for other oxygenates.
 - 4.4 Retain current parameter of 1 per cent volume for methyl tertiary butyl ether.

- 4.5 Introduce a new parameter of 3 per cent volume for methanol. The following stipulations for petrol blended with methanol would also be introduced:
- 4.5.1 The methanol component of any blend of petrol and methanol must contain a corrosion inhibitor;
 - 4.5.2 Co-solvent must be added;
 - 4.5.3 The flexible volatility index maximum allowed for regular and premium grade petrol blended with more than 1 per cent and not more than 3 per cent volume methanol is: 115.0 summer; 120.0 autumn and spring; 130.0 winter. Petrol that complies with the previous season's quality, and that is stored in a filling-station tank to which fewer than 3 deliveries of petrol have been made since 6 weeks before the beginning of the season, is regarded as complying with this specification for up to 6 weeks after the beginning of the season; and
 - 4.5.4 The maximum vapour pressure allowed for regular and premium grade petrol blended with more than 1 per cent and not more than 3 per cent methanol is Auckland and Northland: 72 kPa summer; 87 kPa autumn and spring; 97 kPa winter; rest of North Island: 77 kPa summer; 87 kPa autumn and spring; 97 kPa winter; South Island: 82 kPa summer; 92 kPa autumn and spring; 102 kPa winter. Petrol that complies with the previous season's quality, and that is stored in a filling-station tank to which fewer than 3 deliveries of petrol have been made since 6 weeks before the beginning of the season, is regarded as complying with this specification for up to 6 weeks after the beginning of the season.
 - 4.5.5 If petrol contains methanol greater than 1 per cent by volume, the seller of the petrol must ensure that the dispensing pump or container is clearly marked to display –
 - 4.5.5.1 The maximum percentage by volume of methanol that the petrol contains (which must be no greater than the limit set out in Schedule 1 of the Regulations); and
 - 4.5.5.2 The words "May not be suitable for all vehicles/engines. Check with the manufacturer before use."
- 4.6 Clarify the calculation of "pool average" for aromatics to ensure that in each period of six months the sum of debits and credits must not be negative;
- 5 **Agree** to amend the following changes to the specification for diesel in the Regulations:
- 5.1 increase the maximum limit of fatty acid methyl esters (biodiesel) in diesel to 7 per cent volume; and

- 5.1.1 If diesel contains fatty acid methyl esters greater than 5 per cent by volume, the seller of the diesel must ensure that the dispensing pump or container is clearly marked to display –
 - 5.1.1.1 The maximum percentage by volume of fatty acid methyl esters that the diesel contains (which must be no greater than the limit set out in Schedule 2 of the Regulations); and
 - 5.1.1.2 The words “May not be suitable for all vehicles/engines. Check with the manufacturer before use.”
- 5.2 Amend footnote 7 in Schedule 2 to read “For diesel blended with more than 1% and not more than 7% volume fatty acid methyl esters, the density maximum is 854 kg/m³”
- 6 **Agree** to increase the minimum oxidation stability in biodiesel in Schedule 3 from 6 hours to 8 hours;
- 7 **Agree** to the following changes to ethanol in Schedule 4:
 - 7.1 reduce maximum sulphur level to 10 ppm by 1 July 2018; and
 - 7.2 increase the maximum methanol level to 1.0 per cent.
- 8 **Agree** to the following changes to test methods:
 - 8.1 ASTM D5059 to be prescribed as an additional test method for lead in petrol;
 - 8.2 BS EN 16136 to be prescribed as an additional test method for manganese in petrol;
 - 8.3 ASTM D6839 to be prescribed as an additional test method for olefins in petrol;
 - 8.4 ASTM D4815 to be added as the approved test method for total oxygen;
 - 8.5 ASTM D6217 to replace the existing test method IP 440 for total contamination in diesel with a footnote in Schedule 2 that:
 - 8.5.1 The test methods EN 12662 and ASTM D7321 could be applied for biodiesel blends of up to 7 per cent depending on CEN and other reviews outcomes; and
 - 8.5.2 Provides the quote “further investigation into total contamination test method to improve precision, particularly in the presence of FAME, is being carried out by CEN.”
 - 8.6 EN 12662 to replace the existing test method IP 440 for total contamination in biodiesel with a footnote reference that reads: "The test method developed for diesel fuel may show analytical problems when applied to FAME. Until a revised version of EN 12662 is developed to address the FAME issue EN 12662:2008 should be used. A more suitable test method is under development by CEN."

- 8.7 ASTM D4052 to be prescribed as an additional test method for density in biodiesel;
 - 8.8 EN 15751 to be prescribed as an additional test method for oxidation stability in biodiesel;
 - 8.9 EN ISO 10370 for carbon residue (on 10% distillation residue) to be removed;
 - 8.10 EN 16294 to be prescribed as an additional test method for phosphorous in biodiesel;
 - 8.11 EN 14538 to be prescribed as an additional test method for group 1 metals (Na + K) in biodiesel; and
 - 8.12 EN 15489 to be prescribed as an additional test method for water in ethanol.
- 9 **Agree** to introduce a new Schedule for petrol blended with more than 70 per cent and not more than 85 per cent ethanol with the following specifications:
- 9.1 Acidity (as acetic acid) - 0.006% m/m maximum to be tested using ASTM D1613;
 - 9.2 Copper strip corrosion (3 hours at 50°C) - No. 1 maximum to be tested using ASTM D130;
 - 9.3 Ethanol - 70-85% v/v to be tested using ASTM D5501;
 - 9.4 Inorganic chloride - 1 ppm maximum to be tested using ASTM D7319 or ASTM D7328;
 - 9.5 Methanol – 1.0% v/v maximum to be tested using ASTM D5501;
 - 9.6 pH_e - 6.5-9.0 to be tested using ASTM D6423;
 - 9.7 Silver strip corrosion - Class 1 maximum to be tested using ASTM D130;
 - 9.8 Solvent washed gum - 5 mg/100 mL maximum to be tested using ASTM D381;
 - 9.9 Sulphur - 50 ppm maximum up to 30 June 2018 and then 10 ppm maximum from 1 July 2018 to be tested using ASTM D5453 or IP 497;
 - 9.10 Vapour pressure (DVPE) - for regular and premium grade petrol blended with more than 70% and not more than 85% volume ethanol, the minimum vapour pressure allowed is 38 kPa and the maximum vapour pressure allowed is Auckland and Northland: 62 kPa summer; 70 kPa autumn and spring; 80 kPa winter; rest of North Island: 65 kPa summer; 75 kPa autumn and spring; 80 kPa winter; South Island: 70 kPa summer; 80 kPa autumn and spring; 85 kPa winter to be tested using ASTM D5191
 - 9.11 Water - 1.0% m/m maximum to be tested using ASTM E203 or EN 15489

- 10 **invite** the Minister for Energy and Resources to issue drafting instructions to Parliamentary Counsel Office to give effect to the decisions referred to in the recommendations above;
- 11 **agree** to the Minister of Energy and Resources releasing an exposure draft of the Regulations to relevant stakeholders for comment;
- 12 **agree** that the Minister of Energy and Resources has the power to approve any minor or technical changes to the Regulations;
- 13 **note** that the Minister of Energy and Resources intends to issue a press statement announcing the policy decisions proposed in this paper; and
- 14 **agree** to the public release of this Cabinet paper subject to any appropriate withholdings.

Hon Simon Bridges

Minister of Energy and Resources