FS 2021 – 4 – Draft Final Determination on Proposed Fuel Market Economic & Regulatory Assessment

UTILITY REGULATION AND COMPETITION OFFICE
THE CAYMAN ISLANDS

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Contents

1. Background

1. The Utility Regulation and Competition Office ('OfReg' or the 'Office') is the independent regulator established by section 4 of the Utility Regulation and Competition Act, 2016 (and continued in the 2018, 2019 and 2021 Revisions) (the 'URC Act') for the electricity, information and communications technology, water, wastewater and fuel sectors in the Cayman Islands.

2. Under its enabling legislation, the Office has several functions, one of which is to effectively monitor and supervise the fuel sector, to achieve its mandate of assuring competition, transparency, efficiency and innovation in the markets. In order to strengthen and fully establish its regulatory role in the sector, the Office has conducted a comprehensive market study of the Fuel Sector with the objective of comprehensively assessing the extent and effectiveness of competition within the relevant markets and assessing the potential options (if any) for regulatory reforms in those markets, as a tool to implement the required regulatory mechanisms to achieve its mandate under the various laws.

3. On 16 April 2021, the Office published FS 2021 - 2 – Consultation Proposed Fuel Market Economic & Regulatory Assessment[1] (the 'Consultation'). The Proposed Market Assessment ('the Draft Market Assessment') was appended to the Consultation document.

4. The consultation period closed for submissions at 5:00 P.M. on 14 May 2021.

5. As at the close of the consultation period, Rubis Cayman Islands limited ('Rubis'), and two private individuals who will not be identified ('Private Individual 1' and 'Private Individual 2') provided comments on the Draft Market Assessment.

6. The Office also received two late submissions with comments on the Draft Market Assessment. The submissions were from Home Gas Limited ('Home Gas') and Clean Gas Limited ('Clean Gas').The Office's decision is to accept these late submissions considering that they were the only submissions that included comments directly related to the Propane market. However, the Office encourages Clean Gas and Home Gas to make a meaningful effort to submit future consultations within the given timeframe.

[1] https://www.ofreg.ky/fs2021-2-consultation-proposed-fuels-market-economic-regulatory-assessment

7. In this document, the Office addresses the issues raised in FS 2021 – 2 – Consultation and puts forward the Proposed Fuels Market Assessment, which is appended to this Determination.

2. Legal Framework

8. The Office is guided by its statutory remit in developing the Market Assessment, notably the provisions which follow.

9. The Utility Regulation and Competition Act (2021 Revision) (the 'URC Act') is the principal legislation governing the Office's mandate in respect of the Fuel Sector. Alongside the URC Act, the sector-specific legislation governing the Fuel Sector are the Dangerous Substances Act (2017 Revision) (the 'DS Act') and its supporting Regulations ('DS Regulations'), and the Fuel Market Regulation Act (2017) (the 'FMR Act').

10. Section 6(1) of the URC Act outlines that the principal functions of the Office, in the markets and sectors for which it has responsibility, include "*to promote appropriate effective and fair competition*", "*to protect the short and long term interests of consumers in relation to utility services*", and "*to promote innovation and facilitate economic and national development*."

11. Section 5(1)(b) of the FMR Act provides that one of the functions of the Office in relation to the Fuel Sector is to "*promote fair competition in the fuel sector.*"

12. Section 5(1) of the FMR Act states in part:

> 5. (1) The Office shall supervise the fuel sector in accordance with its jurisdiction under the Utility Regulation and Competition Act, 2016 and, in doing so, the functions of the Office are as follows–
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> (a) To implement policy objectives set out in directions issued by Cabinet pursuant to the Utility Regulation and Competition Act, 2016;
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> […]
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> (b) promote fair competition in the fuel sector;
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> […]
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> (e) to monitor the prices of fuel;
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> […]
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> (k) to prevent discrimination against, or preferential treatment of, any person in the fuel sector, and to prevent monopolistic control of any segment of the chain of supply of fuel; and
>
> (l) to minimise barriers to entry for new participation and investors in the fuel markets.

13. Section 6(2)(o) of the URC Act states that the Office, in performing its functions and exercising its powers under the URC Act or any other Act, may "*conduct research and studies into any matter or technology which may be relevant to its functions and publish its findings, if appropriate.*"

14. Section 7(1) of the URC Act requires the Office, before issuing an administrative determination which in the reasonable opinion of the Office is of public significance, "*… to allow persons with sufficient interest or who are likely to be affected a reasonable opportunity to comment on the draft administrative determination*."

15. It is the position of the Office that it retains the right to propose amendments to the Market Assessment when appropriate but not so frequent as to render the Office's mandate in respect of the Fuel Sector arbitrary or capricious, but in any event only after consultation.

3. FS 2021 – 2 – Consultation

16. In **FS 2021 - 2 - Consultation**, the Office considers that it is in the interest of the public to consider options for a comprehensive regime to effectively monitor and regulate the Fuel Sector, in order to achieve the Office's mandate in respect of the Fuel Sector including to promote fair competition in the Fuel Sector. This process will ensure that the Fuel Sector delivers the most competitive and desirable outcomes possible for residents, businesses, and other stakeholders in the Cayman Islands.

17. The draft Market Assessment Report was attached to the consultation document as "APPENDIX 1". In the consultation document, the Office noted that it has carried out a comprehensive assessment of the effectiveness of competition of fuels markets in the Fuel Sector, and an assessment of the potential options (if any) for regulatory reforms of those markets, as the second element of its market study into the Fuel Sector. The Market Assessment Report presents this analysis. The Market Definition Report, on which the Office consulted the public in an earlier consultation, and which defined the relevant markets in the Fuel Sector for regulatory purposes, was the first element of the Office's market study into the Fuel Sector.

18. The Market Assessment Report analyses the effectiveness of competition in the markets in the Fuel Sector, and assesses that the sector is generally highly concentrated and not highly competitive, but that in the context of the small market size and the relevant economies of scale, the Fuel Sector is "workably"

competitive and that competition can potentially operate to a satisfactory degree. The Market Assessment Report then considers a number of options regarding potential regulatory models, rules, determinations, and other intervention strategies.

19. In the Consultation, the Office posed fifteen specific questions (with sub-questions) regarding the draft Market Assessment Report, including regarding the functioning of the relevant markets and the potential regulatory options, and in the fifteenth question also asked respondents to provide their views on any other matters that they considered relevant to the Consultation.

4. Comments Received and Office Responses

20. The Office received five responses to **FS 2021 – 2 – Consultation**, from Rubis, Home Gas, Clean Gas, Private Individual 1, and Private Individual 2.[2] The Office has reviewed all comments received and its responses are set out below each comment.

4.1 Rubis

A) Question 1

What are your views on the conclusions that:

World market prices of crude oil are a primary factor in determining the prices of refined products and changes in those prices, and that small markets such as the Cayman Islands as price takers in world market for refined products are thereby susceptible to the volatility of world market prices for crude oil.

21. Rubis stated that “this is a reality and not only for the Cayman Islands, but worldwide”, while noting that “the operational costs of running the fuels logistics on island are also very high and cause an impact on the overall cost of fuel” due to “the small size of the market in the Cayman Islands and extremely high cost of living”.

[2] https://www.ofreg.ky/fs2021-2-notice-of-submission-proposed-fuels-market-economic-regulatory-assessment-report

Office Response

22. The Office acknowledges Rubis' agreement regarding the impact of world market prices for crude oil and refined products.

A) Question 2

What are your views on the conclusions that:

a) Barriers to entry in the wholesale/bulk gasoline and diesel markets are relatively high.
b) The wholesale/bulk markets for gasoline and diesel are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the wholesale/bulk markets for gasoline and diesel.

23. In response to question 2(a), Rubis stated (in summary) that "barriers to entry are in reality low", and noted that there had been entry into the market in recent years by a supplier using ISO containers to import fuels.
24. In response to question 2(b), Rubis stated that it disagrees as the market "is attended by 3 different suppliers with different advantages and disadvantages".
25. In response to question 2(c), Rubis stated (in summary) that "it is difficult to envision having multiple suppliers in a market [of] the size of the Cayman Islands", and also stated that suppliers have responsibilities to ensure secure and reliable supply, with commensurate infrastructure and cost requirements.

Office Response

26. In relation to Rubis' first comment regarding barriers to entry, the Office acknowledges but disagrees with this comment. The Office notes that, as defined in the Market Assessment Report according with widely accepted principles in competition analysis, barriers to entry are "factors which prevent or deter the entry of new firms into an industry even when incumbent firms are earning high profits". The Office acknowledges Rubis' observation that there has been entry into the relevant market in recent years, but notes that the mere observation of one instance of entry does not negate the existence of barriers to entry. Barriers to entry are not only those factors that prevent entry altogether; they include factors that deter entry (i.e. make entry more difficult), even if they do not prevent entry altogether. As also noted in the Market Assessment Report, barriers to entry include cost factors such as the existence of costs that increase the risks and costs of entry, and economies of scale, among other factors. In this regard, the Office notes that other responses by Rubis to the consultation have referred variously to the costs, investment

requirements, and scale requirements for operating in the relevant markets, responses which in fact add further support to the conclusion that barriers to entry in these markets are relatively high. Furthermore, in relation to the market entry has occurred, the Office acknowledges Rubis' statement that this market entry is by way of imports using ISO containers, and notes that the Market Assessment Report noted in Section 4.5.1 the potential capacity constraints on any supplier reliant on fuel shipments by way of ISO containers to participate as a supplier in the fuel sector. Finally, the Office notes that Rubis has provided no other substantiation for its statement that barriers to entry in these markets are low. Accordingly, the Office concludes that it is best not to accept Rubis' proposed conclusion.

27. In relation to Rubis' second comment regarding the degrees of competition and concentration in the relevant markets, the Office acknowledges but disagrees with Rubis' second comment. The relevant sections 4.5 and 4.6 of the Market Assessment Report outline the relevant criteria and assessment factors leading to the assessment that these markets are highly concentrated and not strongly competitive. The Office further notes that the Market Assessment Report adopted as a benchmark whether a market is "effectively" competitive, taking into account the structural and dynamic characteristics of the relevant market, including prevailing economies of scale, and concluded that while the relevant market structure may be consistent with prevailing economies of scale, the market incumbents are nevertheless sufficiently shielded from competitive pressures that the market is not strongly competitive. Accordingly, the Office concludes that it cannot accept Rubis' proposed conclusion.

28. In relation to Rubis' third comment as to the suppliers' significant market power, the Office acknowledges Rubis' comment. The Office notes that Rubis does not disagree that it has significant market power in the relevant markets. The Office further notes that Rubis acknowledges that it would be "difficult to envision having multiple suppliers" in the relevant markets given the market size, and notes that this supports the conclusion that the market is highly concentrated and that as a result the relevant suppliers have significant market power, further supported by the relevant barriers to entry, in line with the conclusion in the Market Assessment Report. The Office further acknowledges Rubis' observation that suppliers in these markets have responsibilities regarding supply security and reliability, with commensurate cost and infrastructure responsibilities, and notes that these factors further support the conclusion of significant market power.

A) Question 3

What are your views on the conclusions that:

a) Barriers to entry in the retail markets for gasoline and diesel are moderately high but not as high as in the wholesale/bulk market levels.
b) The retail markets for gasoline and diesel on Grand Cayman are moderately concentrated but not highly concentrated, and are not strongly competitive.
c) The retail markets for gasoline and diesel on Cayman Brac and Little Cayman are highly concentrated, and are not strongly competitive.
d) None of the retail stations on Grand Cayman has significant market power in the retail markets for gasoline and diesel.
e) Each of the retail stations on Cayman Brac and Little Cayman has significant market power in its retail markets for gasoline and diesel.

29. In response to question 3(a), Rubis observed that there are three wholesale suppliers delivering fuels to 20+ retail stations.
30. In response to question 3(b), Rubis stated that it disagrees with the conclusion as (according to Rubis) "the end customers always have had various choices to buy fuels from different service stations at different prices and locations", and (in summary) that customers also choose retail stations based on fuel specifications, convenience stores at the stations, and service quality levels. Rubis also stated that "retailers operate independently and have complete freedom to set their own prices".
31. In response to question 3(c), Rubis stated (in summary) that the small size of the markets in the Sister Islands would not "justify" additional retail stations.
32. In response to question 3(d), Rubis stated that it has no comments.
33. In response to question 3(e), Rubis stated that the conclusion "is a reality" because of the size and characteristics of the Sister Islands markets.

Office Response

34. In relation to Rubis' first response regarding barriers to entry, the Office acknowledges but disagrees with Rubis' first comment. The Office refers to its response in paragraph 26 above, and Office concludes that it best not to accept Rubis' proposed conclusion.
35. In relation to Rubis' second comment regarding the degrees of competition and concentration in the relevant markets, the Office acknowledges but disagrees with Rubis' second comment. The relevant sections 4.5 and 4.6 of the Market Assessment Report outline the relevant criteria and assessment factors leading to the assessment that these markets are highly concentrated and not strongly

competitive. The Office further refers to its response in paragraph 27 above. Accordingly, the Office concludes that it cannot accept Rubis' proposed conclusion.

36. In relation to Rubis' responses to questions 3(c) and 3(e), the Office acknowledges Rubis' observations regarding the market structure and size of the relevant markets in the Sister Islands, and observes that Rubis' observations support the relevant findings in the Market Assessment Report.

37. The Office acknowledges that Rubis had no comment in response to question 3(d).

A) Question 4

What are your views on the conclusions that:

a) The barriers to entry to the markets for aviation fuels, namely jet fuel/ kerosene and avgas, are moderately high.

b) The markets for jet fuel/kerosene and avgas are highly concentrated and are not strongly competitive.

c) Rubis and SOL have significant market power in the markets for jet fuel/kerosene, while Rubis has significant market power in market for avgas.

38. In response to questions 4(a) and 4(b), Rubis responded (in summary) with a number of detailed observations regarding the structure of and operational requirements in the relevant markets, and stated that the two current suppliers are "very competitive" in these markets.

39. In response to question 4(c), Rubis referred to its response to questions 4(a) and 4(b). Specifically in relation to avgas, Rubis also stated (in summary) that this market is "miniscule" in the Cayman Islands and is "disappearing" world-wide, has specific delivery and maintenance requirements, and is reliant on associated investments and operations in the jet fuel market.

Office Response

40. In relation to Rubis' first response to questions 4(a) and 4(b), the Office notes that Rubis' observations regarding the market structure and operational requirements are consistent with and support the findings in the Market Assessment Report regarding barriers to entry. The Office further notes that these observations, combined with Rubis' observations regarding the number of suppliers, also are consistent with and support the findings in the Market Assessment Report regarding the level of concentration and degree of competition in these markets. The Office refers to sections 4.7 and 4.8 of the Market Assessment Report and its responses in paragraphs 26 and 27 above.

Accordingly, the Office does not agree with Rubis' statement that the relevant markets are "highly competitive".

41. In relation to Rubis' second response to question 4(c), the Office acknowledges Rubis' observations and notes that they are consistent with the Market Assessment Report conclusion of significant market power by the relevant suppliers.

A) Question 5

What are your views on the conclusions that:

a) The barriers to entry to the market for propane (LPG) are moderate for small scale market entry but substantially higher for larger scale market entry.
b) The market for propane (LPG) is highly concentrated.
c) The market for propane (LPG) is modestly but not highly competitive.
d) Home Gas has significant market power in the market for propane (LPG) but Clean Gas does not have significant market power in this market.

42. No comment.

Office Response

43. N/A.

A) Question 6

What are your views on the conclusions that:

a) The market for acetylene is highly concentrated.
b) The market for acetylene is not competitive.
c) PMIG has significant market power in the market for acetylene.

44. No comment.

Office Response

45. N/A.

A) Question 7

What are your views on the conclusions that:

a) Economies of scale in the fuel sector in the Cayman Islands are significant relative to the market size.

b) The fuel sector in the Cayman Islands in general is not highly competitive but competition is at least partly effective or workable.

46. In response to question 7(a), Rubis stated (in summary) that "substantial infrastructure", requiring "very high investments and high working capital requirements", is required for secure, reliable supply, and that suppliers that can achieve economies of scale (also across countries and customer types) "will always be better positioned to supply different markets in a reliable [and] cost effective way".
47. In response to question 7(b), stated that it disagrees with the Market Assessment Report and stated that "the market is very competitive", taking into account "the size of the market, available suppliers and number of service stations" and required investments.

Office Response

48. In relation to Rubis' response to question 7(a), the Office acknowledges Rubis' comments and notes that they are consistent with the conclusion in the Market Assessment Report that economies of scale in the Fuel Sector are significant relative to the market size.
49. In relation to Rubis' response to question 7(b), the Office acknowledges but disagrees with Rubis' comment. The relevant parts of section 4 of the Market Assessment Report outline the relevant criteria and assessment factors leading to the assessment of the degree of competition in the relevant market. Furthermore, as the Office also notes in paragraph 27 above, the Market Assessment Report has adopted as a benchmark whether a market is "effectively" competitive, taking into account the structural and dynamic characteristics of the relevant market, including prevailing economies of scale, and has accordingly concluded that the Fuel Sector in the Cayman Islands is not highly competitive, but that competition is at least partly effective or workable. .Respectfully, the Office does not agree with the response for the foregoing reasons, and it will continue in its determination as stated in the consultations.

A) Question 8

What are your views on the functioning of the fuel sector in the Cayman Islands in general, including:

a) The effectiveness of competition and market outcomes in the fuel sector.
b) The relevance and effectiveness (if any) of countervailing and buyer power in moderating any significant market power by sectoral providers.
c) The extent to which (if any) sectoral providers may engage in collusive or other anti-competitive conduct.
d) Any difficulties in detecting anti-competitive conduct by sectoral providers.
e) Any other issues you consider to be relevant in evaluating the functioning of competition and market outcomes in the fuel sector.

50. In response to question 8(a), Rubis stated that "overall competition exists and it is effective as it is", and stated that "customers have multiple choices and can decide on the various options available in country".
51. Rubis stated that it has no comment to question 8(b).
52. In response to question 8(c), Rubis stated it "would never engage in any type of collusive or anti-competitive conduct" and that it follows this operating model in the 41 countries in which it operates. Rubis also stated that it has asked the Cayman Islands Government "for years to have the capacity to build our own berthing/mooring facilities to be able to better compete in the market by reducing our costs and while not depending on a competitor for the use of their own infrastructure".
53. Rubis stated that it has no comment to question 8(d).
54. Rubis stated that it has no comment to question 8(e).

Office Response

55. In relation to Rubis' comments to question 8(a), the Office acknowledges Rubis' response and notes that the response is consistent with the Market Assessment Report's conclusion that the fuel sector in the Cayman Islands in general is not highly competitive, but that competition is at least partly effective (or workable). The Office also refers to its observations in paragraphs 26, 27, and 49 above.
56. In relation to Rubis' comments to question 8(c) regarding collusive or anti-competitive conduct, the Office acknowledges Rubis' response, and notes that while the present market study is a wider assessment of the degree of

competition in the relevant markets and potential regulatory options rather than being an investigation of specific anti-competitive conduct, however the Office is empowered under the URC Act to investigate and prosecute various types of collusive and anti-competitive conduct, as is also outlined in section 5 of the Market Assessment Report. As regards Rubis' comment regarding berthing/mooring facilities, the Office acknowledges Rubis' observation but notes that this observation is more relevant to question 11 below.

57. The Office acknowledges that Rubis had no comment to questions 8(b), 8(d), and 8(e).

A) Question 9

What are your views on:

a) The conclusion that increased clarity in the use of market share thresholds in determinations of significant market power may increase legal certainty and administrative tractability, for more accurate administrative determination.

b) The ensuing recommendation that a market share of 40% or higher may result in a presumption of significant market power, which may be potentially rebutted by evidence that barriers to entry into a market are not substantial.

58. In response to question 9(a), Rubis stated that it does not believe that establishing certain thresholds to determine significant market power will increase legal certainty and administrative tractability, and that this is "not the best approach". Rubis also stated that, in a small market, small variations in fuels volumes can change a market share.

59. In response to question 9(b), Rubis stated that market share "should not be conducive to specific determinations".

Office Response

60. In relation to Rubis' comments to questions 9(a) and 9(b), the Office acknowledges Rubis' comments; the Office disagrees with Rubis' comments overall regarding the desirability of market share thresholds, but agrees with Rubis' specific point regarding the potential impact of short-term volume variations.

61. The Office notes that Rubis has not provided any reasons for stating that market thresholds would not increase legal certainty and administrative tractability. The Office notes that market shares are widely used in competition analysis in most jurisdictions to determine the existence of significant market power (also referred to by other terms such as dominance), including in the

Cayman Islands, where the sectoral provider's market share is the first of the relevant criteria expressly specified in the URC Act (section 44(3)). Furthermore, market shares of 40% or above are generally accepted in competition analysis, including in the Office's prior practice and guidance, as providing very strong evidence of substantial market power (or equivalent terms). In addition, as regards establishing a rebuttable presumption of significant market power (or equivalent terms) above a certain market threshold, the Office notes that this practice is similarly widely used, including mature jurisdictions.

62. As regards to the issue increased legal certainty and administrative tractability, the Office notes that an assessment based on market shares is demonstrably more certain and more tractable than the alternative, which is to conduct a comprehensive multi-factor economic assessment of the supplier's market power, including quantitative assessment of its pricing power and a number of other relevant factors, which would have highly significant and adverse costs and time implications for all parties, including for the sectoral providers. The Office notes that, for this reason, increased reliance on market share thresholds would also assist the sectoral providers to achieve tractability and legal certainty in their own self-assessments, by comparison with the alternative of comprehensive economic assessments for each case and each sectoral provider.

63. The Office also notes that the recommendation is to use market share thresholds as a *rebuttable* presumption, rebuttable by evidence that the sectoral provider does not have significant market power, for instance by strong evidence that barriers to entry are low in a way that the prospects of potential entry may closely constrain the sectoral provider's competitive behaviour, its large market share notwithstanding. The recommendation is not for a conclusive, unrebuttable conclusion. The Office notes that this would effectively protect the sectoral providers' interests.

64. The Office further notes that, consistent with most competition laws world-wide including those of the mature jurisdictions, it is not a contravention of the URC Act merely to have significant market power in and of itself, but rather that where a sectoral has significant market power, this gives rise to certain other legal obligations under the URC Act in relation to the sectoral provider's conduct and compliance.

65. The Office acknowledges Rubis' observation that, in a small market, small variations in fuels volumes can change a market share, and agrees with the observation. The Office notes that significant market power is generally understood to be *durable* rather than fleeting, temporary market power. The Office notes that the definition of significant market power in the Market Assessment Report specifies that significant market power is where a provider has the requisite economic strength "for a sustained period of time". Accordingly, the Office agrees that a determination of significant market power

should be based on a sectoral provider having a market share of 40% or higher for a sustained period of time. The Office will make the appropriate clarification to the relevant section of the Market Assessment Report.

A) Question 10

What are your views on:

a) The conclusion that the Office's initiatives to increase price transparency in the fuel sector likely enhance the state of competition in the relevant markets.

b) The corollary recommendation that the Office may further enhance price transparency by considering options for temporary price lock-in mechanisms at retail stations coupled with retail stations reporting their prices to the Office.

66. In response to question 10(a), Rubis stated that the Office's "current mechanism" "is enough from a pricing transparency perspective", and that customers can choose from "various options and locations" as regards retail stations.

67. In response to question 10(b), Rubis stated that it does not believe that price lock in mechanisms are the solution", and that such mechanisms may diminish the financial performance and returns of the retail stations, and may diminish their capacity to further improve their infrastructure. Rubis stated that it believes in a "completely free market" in this regard.

Office Response

68. In relation to Rubis' comments to question 10(a), the Office acknowledges Rubis' comments. The Office notes the finding in section 6.3 of the Market Assessment Report that price transparency mechanisms that favour consumers generally enhance the process of competition and competitive market outcomes, and the conclusion that the current mechanism, as it enhances price transparency for consumers, therefore likely enhances competition and market outcomes in the Fuel Sector.

69. In response to Rubis' comments to question 10(b), the Office acknowledges Rubis' comments. However, the Office notes that the enhanced mechanisms outlined in section 6.3 of the Market Assessment Report are proposed with a view to further enhancing price transparency for consumers and thereby to further enhance the degree of competition in those markets. The Office further observes that, under the URC Act, the core objectives of the Office include the promotion of appropriate effective and fair competition (URC Act, section 6(1)(b)) and to protect the short and long term interests of consumers (URC

Act, section 6(1)(c)). The Office will therefore explore all feasible options that may enhance the degree of competition in the relevant markets and promote the interests of consumers. However, the Office notes that it has not yet made a decision regarding which (if any) of the options presented in this regard it intends to adopt.

A) Question 11

What are your views on:

a) The conclusion that there may be critical importation and other infrastructure "bottlenecks" in the supply chain of the fuel sector that may have an adverse impact on the ability of competition to work effectively in downstream and other related markets.

b) The ensuing recommendation that, in line with the practice in other jurisdictions, the Office consider options for a structured mandated access or "essential facilities" regime, under which an access seeker may gain access to certain critical infrastructure facilities, if those facilities are declared under a structured process to meet certain cumulative criteria (including that they cannot be economically or feasibly duplicated, and that access to them would promote competition in related markets).

70. In response to question 11(a), Rubis stated that "there may be some importation related bottlenecks (sea berth and import pipeline)," and stated that these arise from "the nature of the country's market size and capacity to build or not further capital intensive facilities in a market that is limited in demand and where financial returns can be seriously affected". Rubis also stated that "one company has demonstrated to operate in a different model that offers some advantages, but also disadvantages in terms of security of supply and probably some safety and/or environmental concerns while managing a supply chain fully dedicated with ISO containers".

71. In response to question 11(b), Rubis stated that it "disagrees with the suggestion of declaring essential facilities and potentially mandating open access to others to participate in the market". Rubis stated that "any potential entrant into a market should have the ability and capacity to build its own infrastructure while also managing its own operations and liabilities or negotiate the required arrangements (throughput, handling, storage fees etc.) with the existing players", that "the Jackson Point area is not the only possible place to have such infrastructure", that "Grand Cayman has other locations where infrastructure could be built in the future", that "there are already 3 suppliers in country with the required infrastructure each to compete in the market place, and that "providing access to other 3rd parties to the existing infrastructure is a

decision that each company should make independently and aligned with its own strategies and potential business improvements taking into consideration its own business interests and future vision".

Office Response

72. In relation to Rubis' comments to question 11(a), the Office acknowledges Rubis' comments. The Office notes that Rubis acknowledges that such supply chain bottlenecks may indeed exist at the importation stage and the costs-related reasons for which there may be such bottlenecks, consistent with the analysis in the Market Assessment Report. The Office also notes that in this response Rubis does not acknowledge the existence of other possible reasons for such bottlenecks, such as geographic, environmental, and regulatory reasons, whereas the Office notes that these other (non-cost) reasons for the bottleneck may provide the hardest constraint on another supplier's ability to provide its own infrastructure. The Office further observes that such infrastructure bottlenecks can have an adverse impact on competition in related markets as assessed in the Market Assessment Report, irrespective of the reasons for which the bottlenecks exist. Declaration and mandated access regimes are intended to ameliorate these adverse consequences (and enhance competition and consumer outcomes in related/downstream markets) if the bottleneck is persistent and cannot be overcome otherwise. As regards alternative importation models relying entirely on ISO containers, the Office refers to paragraph 26 above and section 4.5.1 of the Market Assessment Report regarding the potential capacity constraints on any supplier reliant on fuel shipments by way of ISO containers to participate as a supplier in the fuel sector, and the consequent constraints on the ability of such competitor to exercise full, vigorous competitive constraint on the market.

73. In relation to Rubis' comments to question 11(b), the Office acknowledges Rubis' comments but disagrees with them. Rubis stated that "any potential entrant into a market should have the ability and capacity to build its own infrastructure". The Office notes that this is not necessarily true, if there are hard constraints (economic, geographic, regulatory, or other) preventing such infrastructure being created. The Office notes that the Market Assessment Report proposes a set of criteria that must all be met before a facility can be declared for mandated access. One of the proposed criteria is that "the facility could not be duplicated, or would not realistically be duplicated". The Office's preliminary view is that it would generally not be sufficient to meet this criterion for the access seeker to show that it would be less costly for it to use the existing facilities rather than to construct its own; rather, the access seeker would have to show that it could not or would not realistically duplicate the facility even if it was not granted access to the existing facility. The Office further reiterates that, under the mechanism proposed in the Market Assessment

Report, an access seeker would also have to show that it also satisfies all the other criteria, as is stated clearly in the Market Assessment Report. The Office further notes that (as is clear in the Market Assessment Report), any decision by the Office to adopt such a scheme would *not* mean that any specific facility would necessarily be declared for mandated access; rather, a market participant seeking access would need to apply for access, and would be required to demonstrate that all the criteria are satisfied in relation to the specific facility the subject of the application before the facility could be declared. Finally, the Office notes the observation in the Market Assessment Report that "these criteria are strict and would only be satisfied under restricted circumstances", in particular in circumstances where the existence of the infrastructure bottleneck demonstrably harms competition in related (typically downstream) markets.

74. Rubis stated that, alternatively, a potential entrant should be able to "negotiate the required arrangements … with the existing players". The Office notes that this is not necessarily true, and that control of a bottleneck essential facility can permit the owner/controller of that facility to prevent or harm competition in related (e.g. downstream) markets in a way that benefits itself but harms competition and consumers. The Office notes that this potential phenomenon is widely known and is a core rationale for comparable mandated access regimes in other jurisdictions, as noted in the Market Assessment Report.

75. Rubis further stated that "the Jackson Point area is not the only possible place to have such infrastructure" and that "Grand Cayman has other locations where infrastructure could be built in the future". The Office notes that these statements are inconsistent with the Office's understanding that the Jackson Point area is the only location on Grand Cayman where such infrastructure for bulk onshoring of fuels from vessels could realistically be built on Grand Cayman. Moreover, the Office notes that if this is incorrect, and the situation evolves so that new infrastructure in fact can realistically be constructed, then an access seeker would not be able to demonstrate the criterion that "the facility could not be duplicated, or would not realistically be duplicated", and would therefore not be granted mandated access under the mechanism proposed in the Market Assessment Report. The Office notes further that Rubis itself states in its responses to questions 8 and 15 that it has sought, but been unsuccessful, to be granted permission to construct comparable infrastructure.

A) Question 12

What are your views on:

a) The conclusion that the material disadvantages to regulated price control regimes outlined in the report outweigh the potential advantages.
b) The ensuing recommendation that price control mechanisms is not the preferred option given the other effective regulatory option outlined in the findings.

76. In response to question 12(a), Rubis stated that it agrees "that price control is not a solution that benefits the end customer".
77. In response to question 12(b), Rubis stated that it agrees that "price control mechanisms are not the preferred option," and stated that any other regulatory options the Office chooses should guarantee a level playing field under the rules and regulations for market participants, should be "clearly communicated and followed by everyone in order to ensure fair competition", and should also adhere to health, safety, environmental, and supply security considerations.

Office Response

78. In relation to Rubis' comments to question 12(a), the Office acknowledges Rubis' comments. However, the Office notes that while it will consider the recommendation in the Market Assessment Report, it is not bound to this recommendation and retains full discretion among all regulatory options to it under the URC Act now and in the future.
79. In relation to Rubis' comments to question 12(b), the Office acknowledges Rubis' comments and observes that any regulatory mechanism introduced by the Office will be consistent with the Office's principal functions and other duties under the URC Act and other applicable laws.

A) Question 13

What are your views on:

a) The conclusion that low or absent barriers to entry to a market generally enhances competitive outcomes in markets, and can do so

even if there is no competitive entry, as long as there is a realistic threat of competitive entry.

b) The ensuing recommendation that the Office consider mechanisms to take into account barriers to entry and other factors influencing the level of competition when making decisions more generally.

80. In response to question 13(a), Rubis stated that "this is not necessarily true" and stated that "the Cayman Islands has demonstrated that there can be other competitors in the market, pricing in a different way their fuels and still the end customer has the choice and different options to buy from". Rubis also stated that if there were no barriers to entry, "the size of the market is still so small that potential entrants may be discouraged by not being able to find it attractive enough".
81. In response to question 13(b), Rubis stated that the "primary concern for the Office should be in line with" Rubis' comments to question 12(b).

Office Response

82. In relation to Rubis' comments to question 13(a), the Office acknowledges Rubis' comments but observes, with respect, that Rubis' comments are not responsive to the question posed. The question asked for a response to the conclusion that low or absent barriers to entry generally enhances competition in a market, even if there is no actual entry, because (to rephrase slightly) the threat of competitive entry can be sufficient to impose competitive discipline on suppliers, and low/absent barriers to entry generally enhances said threat of competitive entry. The Office further notes that this is widely accepted in competition and regulation analysis, for the reasons discussed in the Market Assessment Report. Rubis' first observation is, with respect, not germane to the issue posed. Rubis' second observation regarding the market size in fact describes a particular type of barrier to entry (regarding the interaction of economies of scale and market demand, as is noted in the Market Assessment Report), rather than addressing the issue in the question, and therefore is also not germane to the issue posed. The Offices therefore notes that Rubis has provided no germane reason for its statement that "this is not necessarily true", and therefore does not agree with this statement.
83. In relation to Rubis' comments to question 13(b), the Office notes that it has already addressed question 12(b) in the relevant section above.

A) Question 14

What are your views on the recommendation that the Office consider templates and other streamlining processes to enhance compliance and reduce the compliance burden on reporting stakeholders?

84. In response to question 14, Rubis stated (in summary) that "compliance burden must be reduced" and that "some clear guidelines on key matters" regarding local compliance and alignment with international standards should be achieved.

Office Response

85. In relation to Rubis' comments to question 14, the Office acknowledges Rubis' comments and notes that the comments are broadly consistent with the relevant recommendation in the Fuel Market Assessment Report.

A) Question 15

Please provide your views on any other matters you consider relevant to this Consultation.

86. In response to question 15, Rubis made the following general observations. First, Rubis stated (in summary) that there is a very high investment cost to suppliers in small markets such as the Cayman Islands Fuel Sector, and that in some cases there are contractual compulsory minimum stock requirements that add to investment and working capital costs. Second, Rubis states that it believes that it is important for there to be a level playing field among suppliers (existing and potential entrants) as regards rules and regulation including safety, infrastructure, and operational standards. Third, Rubis stated again that "consideration should be given to Rubis to be able to build its own importing facilities (berth/pipeline)". Fourth, Rubis stated that "consideration should be given to review the existing duties and fees being imposed on fuels at the moment of importation", while acknowledging that this was out of scope of the market study and the Consultation.
87. In response to question 15, Rubis made the following regarding the Market Assessment Report. First, Rubis stated that the Market Assessment Report incorrectly states that the Jackson Point facilities are shared, but that they are in fact separately owned and operated by Rubis and Sol. Second, Rubis stated that section 1.2 of the Market Assessment Report should emphasize "the importance of security and reliability of supply as important factors to be considered in a market study". Third, Rubis noted that section 1.3 of the Market

Assessment Report referred to "high profits" and asked how this is defined, stating that this should be clarified. Fourth, Rubis stated in relation to section 4.2.1 of the Market Assessment Report that the price of crude oil affects the prices of diesel and jet fuel in addition to gasoline.

Office Response

88. In relation to Rubis' various comments to question 15, the Office acknowledges those comments and in turn comments on them below.
89. In relation to Rubis' first general comment to question 15, the Office notes that it has already responded to corresponding points in relation to questions 2, 3, 4, 7, and 11 above.
90. In relation to Rubis' second general comment to question 15, the Office notes that it has already responded to corresponding points in relation to question 12 above.
91. In relation to Rubis' third general comment to question 15, the Office notes that it has already responded to corresponding points in relation questions 8 and 11 above.
92. In relation to Rubis' fourth general comment to question 15, the Office notes and agrees with Rubis' acknowledgment that this issue is out of scope of the market study and the Consultation.
93. In relation to Rubis' first specific comment to question 15, the Office acknowledges Rubis' comment and acknowledges that the relevant part of the Market Assessment contains a drafting inexactitude. The Office understands that the onshore aspects of the Jackson Point facilities are separately owned and operated by Rubis and Sol, but that certain offshore aspects are shared in use (if not in ownership). For clarity of drafting, the Office has amended the relevant sections of the report in reflection of this observation.
94. In relation to Rubis' second specific comment to question 15, the Office notes that the said factors are reflected in the principal functions of the Office under the URC Act, and that (as stated in relation to question 2 above) the costs associated with those factors are relevant for a competition and market assessment, including as regards their relevance as barriers to entry and determinations of significant market power.
95. In relation to Rubis' third specific comment to question 15, the Office notes that this definition is consistent with and draws on the widely-accepted Organisation for Economic Cooperation and Development definition of barriers to entry. For clarity, this specific aspect of the definition is not material to and has no bearing on any of the analysis conducted for the Fuel Sector in the Market Assessment Report, or any of the conclusions and recommendations that flow from this analysis.

96. In relation to Rubis' fourth specific comment to question 15, the Office notes that the referenced sentence in the Market Assessment Report in fact states that the "price of crude oil is generally the largest component of the retail price of gasoline *and other refined products*" (emphasis added). The Office notes that refined products include diesel and jet fuel. However, for the absolute avoidance of doubt, the Office has amended the relevant sentence to explicitly reference diesel and jet fuel.

4.3 Home Gas

A) Question 1

What are your views on the conclusions that:

World market prices of crude oil are a primary factor in determining the prices of refined products and changes in those prices, and that small markets such as the Cayman Islands as price takers in world market for refined products are thereby susceptible to the volatility of world market prices for crude oil.

97. In response to this question, Home Gas stated (in summary) that fuel product has some volatility to crude oil prices and market trading, that propane prices have been somewhat less volatile in recent years, and that shipping costs to the Cayman Islands are a significant portion of the cost of fuels in the Cayman Islands.

Office Response

98. The Office acknowledges Home Gas' statements and notes that Section 4.2 of the Market Assessment Report analyses the different cost components of fuels in the Cayman Islands.

A) Question 2

What are your views on the conclusions that:

a) Barriers to entry in the wholesale/bulk gasoline and diesel markets are relatively high.
b) The wholesale/bulk markets for gasoline and diesel are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the wholesale/bulk markets for gasoline and diesel.

99. In response to questions 2(a) and 2(b), Home Gas stated that it believes that "the market relative to the size is adequately concentrated" and that "the fuel companies have high capital expenses and are taking significant risks in regard to their margins".
100. In response to question 2(c), Home Gas stated that "considering the market size, the influence of Rubis and Sol are expected".

Office Response

101. The Office acknowledges Home Gas' comments in relation to question 2. In relation to Home Gas' observations regarding "high capital expenses", the Office refers to its response to Rubis' comments on question 2 above.

A) Question 3

What are your views on the conclusions that:

a) Barriers to entry in the retail markets for gasoline and diesel are moderately high but not as high as in the wholesale/bulk market levels.
b) The retail markets for gasoline and diesel on Grand Cayman are moderately concentrated but not highly concentrated, and are not strongly competitive.
c) The retail markets for gasoline and diesel on Cayman Brac and Little Cayman are highly concentrated, and are not strongly competitive.
d) None of the retail stations on Grand Cayman has significant market power in the retail markets for gasoline and diesel.
e) Each of the retail stations on Cayman Brac and Little Cayman has significant market power in its retail markets for gasoline and diesel.

102. In response to question 2(a), Home Gas stated that "all fuel companies have a significant capital investment required" for safe and efficient storage and distribution of fuels, and stated that smaller tank storage has "lower upfront costs" and that it therefore believes that "a retail location is significantly less expensive to build than a wholesale operation".
103. In response to question 2(b), Home Gas stated that it believes that "the market is fairly competitive considering the market size".
104. In response to question 2(c), Home Gas stated that "the Sister Islands are tiny markets" where operators "have a huge risk for little to no profit".
105. In response to question 2(d), Home Gas stated that it believes that no "single retail station controls the market in Grand Cayman".
106. In response to question 2(e), Home Gas stated that "the tiny market size in Sister Islands cannot sustain competition".

Office Response

107. The Office acknowledges Home Gas' comments in relation to question 3. In relation to Home Gas' observations regarding "significant capital investment", the Office refers to its response to Rubis' comments on question 3 above. In relation to Home Gas' observations that no single retail station "controls" the market in Grand Cayman, the Office notes that relevant criterion (as expressed in the URC Act, the Market Assessment Report, and the Consultation) is not whether a participant "controls" a market but rather whether a participant has "significant market power" in a market. The Office notes that this is a lower threshold than what Home Gas may have in mind with "control". The URC Act

and the Market Assessment Report provide more detail regarding the meaning of "significant market power".

A) Question 4

What are your views on the conclusions that:

a) The barriers to entry to the markets for aviation fuels, namely jet fuel/ kerosene and avgas, are moderately high.
b) The markets for jet fuel/kerosene and avgas are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the markets for jet fuel/kerosene, while Rubis has significant market power in market for avgas.

108. In response to questions 2(a) and 2(b), Home Gas stated that it believes that "there are significant costs and risks to the aviation fuel market with a limited customer base" and that "in most markets there is always less competition in" these aviation fuels.
109. In response to question 2(c), Home Gas stated that it believes that because of the market situation "it makes sense that Rubis and Sol would control those markets".

Office Response

110. The Office acknowledges Home Gas' comments in relation to question 4. In relation to Home Gas' observations regarding "significant costs and risks" in these markets, the Office refers to its response to Rubis' comments on question 4 above. In relation to Home Gas' observations regarding "control" in these markets, the Office refers to its observations regarding "control" vs "significant market power" in its response to Home Gas' comments on question 3 above.

A) Question 5

What are your views on the conclusions that:

a) The barriers to entry to the market for propane (LPG) are moderate for small scale market entry but substantially higher for larger scale market entry.

b) The market for propane (LPG) is highly concentrated.

c) The market for propane (LPG) is modestly but not highly competitive.

d) Home Gas has significant market power in the market for propane (LPG), but Clean Gas does not have significant market power in this market.

111. In response to question 5(a), Home Gas stated (in summary) that there are "significant capital expenses" for potential entrants in this market "at any market size", because of storage requirements and the hazardous nature of propane, and that a significant investment in cylinders and tanks is also required, providing some summary data. Home Gas also noted the small market size of the Cayman Islands propane market.

112. In response to question 5(b), Home Gas stated (in summary) that the market in the Cayman Islands is too small "to sustain multiple competitors" unless margins were to increase.

113. In response to question 5(c), Home Gas observed its long-standing presence in the market and that its long-standing infrastructure "will take a lot of capital and time to equal".

Office Response

114. The Office acknowledges Home Gas' comments on question 5(a) and notes that Home Gas states that barriers to entry are significant at any market entry size, thereby disagreeing with the proposed conclusion in the Market Assessment Report that barriers to entry are higher for larger scale market entry than for small scale market entry. The Office notes that Home Gas' statements are not consistent with the information available to the Office for the purpose of the Market Assessment Report, which supports a conclusion that barriers to entry relating to the infrastructure requirements for large-volume bulk importation through onshoring from bulk vessels are higher than those related to lower-volume importation by way of ISO containers. Nevertheless, the Office also notes that, when importing by ISOs, a supplier has the option for smaller sized facility, but with more frequent imports to meet customers' needs. However, bulk vessel deliveries will certainly require larger storage facility with less frequent imports (vessel deliveries). That being said, the Office also notes that none of the material conclusions and recommendations in the Market

Assessment Report are contingent on or otherwise flow from this specific conclusion.

115. The Office acknowledges Home Gas' comments on question 5(b) and notes that these comments are consistent with the Market Assessment Report conclusion that the market for propane is highly concentrated.

116. In relation to Home Gas' comments on question 5(c), the Office acknowledges these comments but observes that these comments appear to be more apt as a response to question 5(d) rather than 5(c), and will therefore consider them as a response to question 5(d). In this context, the Office notes that Home Gas' statements are consistent with and support the conclusions in the Market Assessment Report regarding significant market power in the propane market.

A) Question 6

What are your views on the conclusions that:

a) The market for acetylene is highly concentrated.
b) The market for acetylene is not competitive.
c) PMIG has significant market power in the market for acetylene.

117. In response to this question, Home Gas stated that it does not have experience in this market as a supplier.

Office Response

118. N/A.

A) Question 7

What are your views on the conclusions that:

a) Economies of scale in the fuel sector in the Cayman Islands are significant relative to the market size.
b) The fuel sector in the Cayman Islands in general is not highly competitive but competition is at least partly effective or workable.

119. In response to question 7(a), Home Gas stated (in summary) that "the economies of scale in the Cayman Islands are the most significant factors for the fuel sector", stating several factors relating to location, bulk storage capacity play, and importation factors.

120. In response to question 7(b), Home Gas stated that it does not agree with the conclusion and that it believes that "the fuel market is highly competitive, and the prices are extremely reasonable for the risk/reward".

Office Response

121. The Office acknowledges Home Gas' comments on question 7(a) and notes that Home Gas' comments support and are consistent with the relevant conclusion in the Market Assessment Report.
122. In relation to Home Gas' response to question 7(b), the Office acknowledges but disagrees with Rubis' comment. The relevant parts of section 4 of the Market Assessment Report outline the relevant criteria and assessment factors leading to the assessment of the degree of competition in the relevant market. Furthermore, as the Office also notes in paragraph 27 above, the Market Assessment Report has adopted as a benchmark whether a market is "effectively" competitive, taking into account the structural and dynamic characteristics of the relevant market, including prevailing economies of scale, and has accordingly concluded that the Fuel Sector in the Cayman Islands is not highly competitive, but that competition is at least partly effective or workable. Accordingly, the Office cannot agree with Home Gas' statement in this regard.

A) Question 8

What are your views on the functioning of the fuel sector in the Cayman Islands in general, including:

a) The effectiveness of competition and market outcomes in the fuel sector.
b) The relevance and effectiveness (if any) of countervailing and buyer power in moderating any significant market power by sectoral providers.
c) The extent to which (if any) sectoral providers may engage in collusive or other anti-competitive conduct.
d) Any difficulties in detecting anti-competitive conduct by sectoral providers.
e) Any other issues you consider to be relevant in evaluating the functioning of competition and market outcomes in the fuel sector.

123. In response to question 8(a), Home Gas stated that the market "is well run and has effective management and controls" in view of its small size.
124. In response to question 8(b), Home Gas stated that "there is some market power for the larger buyers" but also stated that "there are base costs to fuels that must be calculated" by operators.
125. In response to question 8(c), Home Gas stated that "fuel companies are always aware of their competitors' pricing" but that Home Gas strongly disagrees that

"any collusive or anti-competitive practices are taking place", stating that "consumers have too much information at the fingertips for companies to easily take advantage of the captured market". Home Gas noted its observation of "companies outside the fuel industry forcing consumers to choose a specific fuel supplier".

126. In response to question 8(d), Home Gas stated that it believes that "with today's rapid flow of information" it is not "easy to hide anti-competitive conduct".
127. In response to question 8(e), Home Gas stated that "regulators and governments are always examining ways to reduce costs for consumers but that is not always the best solution", and that if margins in the fuel sector are "too low" this may result in "less competition" and "potentially a worse or more dangerous product".

Office Response

128. The Office acknowledges Home Gas' comments on question 8(a).
129. The Office acknowledges Home Gas' comments on question 8(b).
130. In relation to Home Gas' comments to question 8(c) regarding collusive or anti-competitive conduct, the Office acknowledges Home Gas' response, and notes that while the present market study is a wider assessment of the degree of competition in the relevant markets and potential regulatory options rather than being an investigation of specific anti-competitive conduct, the Office is empowered under the URC Act to investigate and prosecute various types of collusive and anti-competitive conduct, as is also outlined in section 5 of the Market Assessment Report.
131. The Office acknowledges Home Gas' comments on question 8(d), but notes that it is empowered under the URC Act to detect and prosecute anti-competitive conduct that contravenes the URC Act, including but not limited to agreements involving sectoral providers that have as their object or effect the prevention, restriction or distortion of competition in the markets and sectors for which the Office has responsibility (under Section 66 of the URC Act) and conduct that constitutes an abuse of a dominant position (under Section 70 of the URC Act).
132. The Office acknowledges Home Gas' comments on question 8(e) but disagrees with Home Gas' assertions, noting that product quality and safety are not in conflict with competitive prices and consumer outcomes in the way that Home Gas' comments suggest.

A) Question 9

What are your views on:

a) The conclusion that increased clarity in the use of market share thresholds in determinations of significant market power may increase legal certainty and administrative tractability, for more accurate administrative determination.

b) The ensuing recommendation that a market share of 40% or higher may result in a presumption of significant market power, which may be potentially rebutted by evidence that barriers to entry into a market are not substantial.

133. In response to question 9(a), Home Gas stated that "the fuel market share needs to be compared as a whole and not just for each individual fuel".

134. In response to question 9(b), Home Gas stated that it disagrees with a 40% market share threshold, and stated that "this would mean each fuel would have at least 3 companies in the market", stating that the propane market "cannot even viably sustain 2 competitors at the current time".

Office Response

135. In relation to Home Gas' comments on question 9(a), the Office acknowledges but disagrees with those comments. The Office notes that it is universal practice world-wide in competition and regulation analysis, including in the Cayman Islands, to assess market shares as being the relevant suppliers' shares of the relevant defined market. The Office has previously published guidance regarding how markets are defined for these purposes.[3] The relevant markets were defined earlier in this market study in the Market Definition Report, which the Office adopted after a public consultation process. Broadly expressed, and as is explained in detail in the Market Definition Report, relevant markets are defined according to the products (and geographic space) within which consumers will readily substitute between the different products (and geographic spaces) within the relevant market. As an example, these accepted principles mean that gasoline and diesel are defined as separate markets because the owner of a gasoline-fuelled vehicle cannot readily substitute to diesel by filling their car with diesel if the price of gasoline increases by a few per cent (the Office notes that this explanation is over-simplified for explanatory purposes and the full analysis can be found in the

[3] OF 2017 – G2 – Guidelines, Guidelines on the Criteria for the Definition of Relevant Markets and the Assessment of Significant Market Power, available at **https://www.ofreg.ky/of-2017-2-determination-of-2017-g2-guidelines**

Market Definition Report). Home Gas' comments are therefore inconsistent with accepted principles of market definition as applied for the Cayman Islands Fuel Sector in the Market Definition Report, and the Office accordingly disagrees with them.

136. In relation to Home Gas' comments on question 9(b), the Office acknowledges but disagrees with those comments. The Office notes that Home Gas' comments may arise from a misunderstanding. Specifically, the comment that "each fuel would have at least 3 companies in the market" suggests that Home Gas may have read the issue as proposing that a supplier would be limited to serving 40% of the market or similar. This is not the case. Rather, the recommendation concerns the way in which observed market shares are used in the determination of whether a provider has significant market power, and s0pecifically that the observation of a market share of 40% or more may be the basis for a (rebuttable) presumption that the provider has significant market power. Differently put, there is no suggestion whatsoever in the recommendation regarding any limits on the shares of a market that a provider can supply. The Office also refers to its comments on Rubis' response to question 9 in paragraphs 60 to 65 above, including the observation that under the URC Act, consistent with most competition laws world-wide including those of mature jurisdictions, it is not a contravention of the law merely to have significant market power in and of itself, but rather that where a sectoral has significant market power, this gives rise to certain other legal obligations under the URC Act in relation to the sectoral provider's conduct and compliance.

A) Question 10

What are your views on:

a) The conclusion that the Office's initiatives to increase price transparency in the fuel sector likely enhance the state of competition in the relevant markets.

b) The corollary recommendation that the Office may further enhance price transparency by considering options for temporary price lock-in mechanisms at retail stations coupled with retail stations reporting their prices to the Office.

137. In response to question 10(a), Home Gas stated that "an educated consumer will always reduce pricing abuses".

138. In response to question 10(b), Home Gas noted that while it "rarely adjusts prices", it does not "feel this is fair to retail gas operations that are more susceptible to global market trends and may need to rapidly adjust for wholesale pricing fluctuations".

Office Response

139. In relation to Home Gas' comment on question 10(a), the Office acknowledges Home Gas' comment and notes that this comment is consistent with the conclusion in the Market Assessment Report that price transparency that favours the consumer generally enhances competition.
140. In relation to Home Gas' comments on question 10(b), the Office acknowledges Home Gas' comment, notes that the relevant section 6.3 of the Market Assessment Report outlines different regulatory options for the Office to consider but that the Office has not yet determined which (if any) of these options it will select, and that the Office notes Home Gas' comments for the purpose of its deliberations.

A) Question 11

What are your views on:

a) The conclusion that there may be critical importation and other infrastructure "bottlenecks" in the supply chain of the fuel sector that may have an adverse impact on the ability of competition to work effectively in downstream and other related markets.

b) The ensuing recommendation that, in line with the practice in other jurisdictions, the Office consider options for a structured mandated access or "essential facilities" regime, under which an access seeker may gain access to certain critical infrastructure facilities, if those facilities are declared under a structured process to meet certain cumulative criteria (including that they cannot be economically or feasibly duplicated, and that access to them would promote competition in related markets).

141. In response to question 11(a), Home Gas stated that "the fuel companies have taken considerable risk with massive infrastructure investment" and stated that "it is unfair to the existing companies that are holding all the risk" if "a new player could enter the market and springboard off those past investments and experiences".
142. In response to question 11(b), Home Gas stated that "if the market was large enough to sustain more competition than it would not be an issue", and that "if you force existing companies to give up their capital investment advantage and artificially increase competition it is extremely risky to the entire market".

Office Response

143. In relation to Home Gas' comments on question 11(a) and question 11(b), the Office acknowledges Home Gas' comments. However, the Office notes that the mechanism proposed in the Market Assessment would not be triggered merely by the fact that it would result in a cost saving for a market participant. The Market Assessment Report outlines clearly that comparable regimes in other jurisdictions have strict criteria before mandated access can be declared, and that the mechanism proposed in the report has similarly strict criteria. Under this proposed mechanism, mandated access would only be declared if several criteria are cumulatively all met, where one of the criteria would be that "the facility could not be duplicated, or would not realistically be duplicated". The purpose of such a mandated access regime would be to unlock essential infrastructure that acts as a bottleneck to competition in related markets. Such bottlenecks can exist for a number of reasons not related to the market size, such as geographic, environmental, and regulatory reasons, reasons which may provide hard constraints on another supplier's ability to provide its own infrastructure. The Office observes that such infrastructure bottlenecks can have an adverse impact on competition in related markets as assessed in the Market Assessment Report, irrespective of the reasons for which the bottlenecks exist. Declaration and mandated access regimes are intended to ameliorate these adverse consequences (and enhance competition and consumer outcomes in related/downstream markets) if the bottleneck is persistent and cannot be overcome otherwise. The Office notes that the Market Assessment Report proposes a set of criteria that must all be met before a facility can be declared for mandated access. One of the proposed criteria is that "the facility could not be duplicated, or would not realistically be duplicated". The Office's preliminary view is that it would generally not be sufficient to meet this criterion for the access seeker to show that it would be less costly for it to use the existing facilities rather than to construct its own; rather, the access seeker would have to show that it could not or would not realistically duplicate the facility even if it was not granted access to the existing facility. The Office further reiterates that, under the mechanism proposed in the Market Assessment Report, an access seeker would also have to show that it also satisfies all the other criteria, as is stated clearly in the Market Assessment Report. The Office further notes that (as is clear in the Market Assessment Report), any decision by the Office to adopt such a scheme would *not* mean that any specific facility would necessarily be declared for mandated access; rather, a market participant seeking access would need to apply for access, and would be required to demonstrate that all the criteria are satisfied in relation to the specific facility the subject of the application before the facility could be declared. Finally, the Office notes the observation in the Market Assessment Report that "these criteria are strict and would only be satisfied under restricted

circumstances", in particular in circumstances where the existence of the infrastructure bottleneck demonstrably harms competition in related (typically downstream) markets.

144. The Office also refers to its comments on Rubis' response to question 11 in paragraphs 72 to 75 above, and its comments on Clean Gas' response to question 11 in paragraph 207 below.

A) Question 12

What are your views on:

a) The conclusion that the material disadvantages to regulated price control regimes outlined in the report outweigh the potential advantages.

b) The ensuing recommendation that price control mechanisms is not the preferred option given the other effective regulatory option outlined in the findings.

145. In response to question 12(a), Home Gas stated that "a free market and educated consumer will deliver the best product at the lowest price".

146. In response to question 12(b), Home Gas stated that it agrees that price controls are not the best option.

Office Response

147. In relation to Home Gas' comments to question 12(a), the Office acknowledges Home Gas' comments. The Office notes that Home Gas' comments regarding the educated consumer is consistent with the conclusion in the Market Assessment Report that price transparency that favors the consumer generally enhances competition.

148. In relation to Home Gas' comments to question 12(b), the Office acknowledges Home Gas' comments.

A) Question 13

What are your views on:

a) The conclusion that low or absent barriers to entry to a market generally enhances competitive outcomes in markets, and can do so

even if there is no competitive entry, as long as there is a realistic threat of competitive entry.

b) The ensuing recommendation that the Office consider mechanisms to take into account barriers to entry and other factors influencing the level of competition when making decisions more generally.

149. In response to question 13(a), Home Gas stated that "competition and the possibility of new competition will reduce prices".
150. In response to question 13(b), Home Gas stated (in summary) that "there are many factors that need to consider beyond just pricing and barriers of entry", also mentioning existing investments, employee experience, safety records, and understanding of the consumer needs.

Office Response

151. In relation to Home Gas' comments to question 13(a), the Office acknowledges those comments and notes that they are consistent with the conclusion in the Market Assessment Report.
152. In relation to Home Gas' comments to question 13(b), the Office acknowledges those comments. The Office agrees that a number of different factors are important for the degree of competition benefiting consumers in a market, and for consumer outcomes and experience. The Office notes that in fact the recommendation explicitly refers to "other factors influencing the level of competition" in addition to referring to barriers to entry. However, the Office also notes that barriers to entry are an important aspect determining the degree of competition and consumer outcomes because they influence the degree to which suppliers may be pressured by competitive forces to be responsive to consumers in terms of pricing and the other factors that matter to consumers. The Office points to the relevant sections of the Market Assessment Report in this respect.

A) Question 14

What are your views on the recommendation that the Office consider templates and other streamlining processes to enhance compliance and reduce the compliance burden on reporting stakeholders?

153. In response to question 14, Home Gas stated that "reporting from stakeholders is an important function of OfReg and critical to the safety of the residents of the Cayman Islands", that "the current methods for reporting are cumbersome", and that Home Gas would be willing to contribute to improvement and possible automation of reporting methods.

Office Response

154. In relation to Home Gas' comments to question 14, the Office acknowledges Home Gas' comments and notes that the comments are broadly consistent with the relevant recommendation in the Fuel Market Assessment Report.

A) Question 15

Please provide your views on any other matters you consider relevant to this Consultation.

155. In response to question 15, Home Gas stated (in summary) that it questions the sense of introducing natural gas to the Cayman Islands "as another transitional fuel" and stated that "it does not make sense to the residents of the Cayman Islands" from a financial and logistical perspective, stating that this fuel source would require much higher volumes than the scale of the Cayman Islands to be economical. Home Gas provided some calculations in support of its statements.

Office Response

156. In relation to Home Gas' comments to question 15, the Office acknowledges Home Gas' comments but notes that they are outside the scope of the current market study and Consultation.

4.4 Clean Gas

A) Question 1

What are your views on the conclusions that:

World market prices of crude oil are a primary factor in determining the prices of refined products and changes in those prices, and that small markets such as the Cayman Islands as price takers in world market for refined products are thereby susceptible to the volatility of world market prices for crude oil.

157. No comment.

Office Response

158. N/A.

A) Question 2

What are your views on the conclusions that:

a) Barriers to entry in the wholesale/bulk gasoline and diesel markets are relatively high.
b) The wholesale/bulk markets for gasoline and diesel are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the wholesale/bulk markets for gasoline and diesel.

159. No comment.

Office Response

160. N/A.

A) Question 3

What are your views on the conclusions that:

a) Barriers to entry in the retail markets for gasoline and diesel are moderately high but not as high as in the wholesale/bulk market levels.
b) The retail markets for gasoline and diesel on Grand Cayman are moderately concentrated but not highly concentrated, and are not strongly competitive.
c) The retail markets for gasoline and diesel on Cayman Brac and Little Cayman are highly concentrated and are not strongly competitive.
d) None of the retail stations on Grand Cayman has significant market power in the retail markets for gasoline and diesel.
e) Each of the retail stations on Cayman Brac and Little Cayman has significant market power in its retail markets for gasoline and diesel.

161. No comment.

Office Response

162. N/A.

A) Question 4

What are your views on the conclusions that:

a) The barriers to entry to the markets for aviation fuels, namely jet fuel/ kerosene and avgas, are moderately high.
b) The markets for jet fuel/kerosene and avgas are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the markets for jet fuel/kerosene, while Rubis has significant market power in market for avgas.

163. No comment.

Office Response

164. N/A.

A) Question 5

What are your views on the conclusions that:
a) The barriers to entry to the market for propane (LPG) are moderate for small scale market entry but substantially higher for larger scale market entry.
b) The market for propane (LPG) is highly concentrated.
c) The market for propane (LPG) is modestly but not highly competitive.
d) Home Gas has significant market power in the market for propane (LPG), but Clean Gas does not have significant market power in this market.

165. No comment.

Office Response

166. N/A.

A) Question 6

What are your views on the conclusions that:

a) The market for acetylene is highly concentrated.
b) The market for acetylene is not competitive.
c) PMIG has significant market power in the market for acetylene.

167. No comment.

Office Response

168. N/A.

A) Question 7

What are your views on the conclusions that:

a) Economies of scale in the fuel sector in the Cayman Islands are significant relative to the market size.
b) The fuel sector in the Cayman Islands in general is not highly competitive but competition is at least partly effective or workable.

169. No comment.

Office Response

170. N/A.

A) Question 8

What are your views on the functioning of the fuel sector in the Cayman Islands in general, including:

a) The effectiveness of competition and market outcomes in the fuel sector.
b) The relevance and effectiveness (if any) of countervailing and buyer power in moderating any significant market power by sectoral providers.
c) The extent to which (if any) sectoral providers may engage in collusive or other anti-competitive conduct.
d) Any difficulties in detecting anti-competitive conduct by sectoral providers.
e) Any other issues you consider to be relevant in evaluating the functioning of competition and market outcomes in the fuel sector.

171. No comment.

Office Response

172. N/A.

A) Question 9

What are your views on:

a) The conclusion that increased clarity in the use of market share thresholds in determinations of significant market power may increase legal certainty and administrative tractability, for more accurate administrative determination.
b) The ensuing recommendation that a market share of 40% or higher may result in a presumption of significant market power, which may be potentially rebutted by evidence that barriers to entry into a market are not substantial.

173. No comment.

Office Response

174. N/A.

A) Question 10

What are your views on:

a) The conclusion that the Office's initiatives to increase price transparency in the fuel sector likely enhance the state of competition in the relevant markets.
b) The corollary recommendation that the Office may further enhance price transparency by considering options for temporary price lock-in mechanisms at retail stations coupled with retail stations reporting their prices to the Office.

175. No comment.

Office Response

176. N/A.

A) Question 11

What are your views on:

a) The conclusion that there may be critical importation and other infrastructure "bottlenecks" in the supply chain of the fuel sector that may have an adverse impact on the ability of competition to work effectively in downstream and other related markets.
b) The ensuing recommendation that, in line with the practice in other jurisdictions, the Office consider options for a structured mandated access or "essential facilities" regime, under which an access seeker may gain access to certain critical infrastructure facilities, if those facilities are declared under a structured process to meet certain cumulative criteria (including that they cannot be economically or feasibly duplicated, and that access to them would promote competition in related markets).

177. Clean Gas stated that it supports a "potential mandated pipeline use discussion", stating that this could "potentially help" Clean Gas to "manage [its]

first costs with shipping" and "reduce [its] costs" if 'the pipeline and bulk storage facility were accommodating with a fair price".

Office Response

178. In relation to Clean Gas' comments to question 11, the Office acknowledges Clean Gas' comments. The Office notes Clean Gas' apparent agreement to the principle of a mandated access regime for critical importation infrastructure as outlined in the Market Assessment Report. The Office observes that Clean Gas states that such a regime could assist it to "manage" and "reduce" its costs. For clarity, the Office notes that the mechanism proposed in the Market Assessment, while it may have as a consequence in some circumstances that an access seeker would have lower costs than it would otherwise have, would not be triggered merely by the fact that it would result in a cost saving for a market participant. The Market Assessment Report outlines clearly that comparable regimes in other jurisdictions have strict criteria before mandated access can be declared, and that the mechanism proposed in the report has similarly strict criteria. Under this proposed mechanism, mandated access would only be declared if several criteria are cumulatively all met, where one of the criteria would be that "the facility could not be duplicated, or would not realistically be duplicated". The purpose of such a mandated access regime would be to unlock essential infrastructure that acts as a bottleneck to competition in related markets; the purpose is not merely to reduce costs for certain market participants, even though this may be the result for certain participants. Please also refer to the Office's comments on Rubis' response to question 11 above.

A) Question 12

What are your views on:

a) The conclusion that the material disadvantages to regulated price control regimes outlined in the report outweigh the potential advantages.

b) The ensuing recommendation that price control mechanisms is not the preferred option given the other effective regulatory option outlined in the findings.

179. No comment.

Office Response

180. N/A.

A) Question 13

What are your views on:

a) The conclusion that low or absent barriers to entry to a market generally enhances competitive outcomes in markets, and can do so even if there is no competitive entry, as long as there is a realistic threat of competitive entry.

b) The ensuing recommendation that the Office consider mechanisms to take into account barriers to entry and other factors influencing the level of competition when making decisions more generally.

181. No comment.

Office Response

182. N/A.

A) Question 14

What are your views on the recommendation that the Office consider templates and other streamlining processes to enhance compliance and reduce the compliance burden on reporting stakeholders?

183. No comment.

Office Response

184. N/A.

A) Question 15

Please provide your views on any other matters you consider relevant to this Consultation.

185. No comment.

Office Response

186. N/A.

4.5 Private Individual 1

A) Question 1

What are your views on the conclusions that:

World market prices of crude oil are a primary factor in determining the prices of refined products and changes in those prices, and that small markets such as the Cayman Islands as price takers in world market for refined products are thereby susceptible to the volatility of world market prices for crude oil.

187. No comment.

Office Response

188. N/A.

A) Question 2

What are your views on the conclusions that:

a) Barriers to entry in the wholesale/bulk gasoline and diesel markets are relatively high.
b) The wholesale/bulk markets for gasoline and diesel are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the wholesale/bulk markets for gasoline and diesel.

189. No comment.

Office Response

190. N/A.

A) Question 3

What are your views on the conclusions that:

a) Barriers to entry in the retail markets for gasoline and diesel are moderately high but not as high as in the wholesale/bulk market levels.
b) The retail markets for gasoline and diesel on Grand Cayman are moderately concentrated but not highly concentrated, and are not strongly competitive.
c) The retail markets for gasoline and diesel on Cayman Brac and Little Cayman are highly concentrated, and are not strongly competitive.
d) None of the retail stations on Grand Cayman has significant market power in the retail markets for gasoline and diesel.
e) Each of the retail stations on Cayman Brac and Little Cayman has significant market power in its retail markets for gasoline and diesel.

191. No comment.

Office Response

192. N/A.

A) Question 4

What are your views on the conclusions that:

a) The barriers to entry to the markets for aviation fuels, namely jet fuel/ kerosene and avgas, are moderately high.
b) The markets for jet fuel/kerosene and avgas are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the markets for jet fuel/kerosene, while Rubis has significant market power in market for avgas.

193. No comment.

Office Response

194. N/A.

A) Question 5

What are your views on the conclusions that:

a) The barriers to entry to the market for propane (LPG) are moderate for small scale market entry but substantially higher for larger scale market entry.
b) The market for propane (LPG) is highly concentrated.
c) The market for propane (LPG) is modestly but not highly competitive.
d) Home Gas has significant market power in the market for propane (LPG), but Clean Gas does not have significant market power in this market.

195. No comment.

Office Response

196. N/A.

A) Question 6

What are your views on the conclusions that:

a) The market for acetylene is highly concentrated.
b) The market for acetylene is not competitive.
c) PMIG has significant market power in the market for acetylene.

197. No comment.

Office Response

198. N/A.

A) Question 7

What are your views on the conclusions that:

a) Economies of scale in the fuel sector in the Cayman Islands are significant relative to the market size.
b) The fuel sector in the Cayman Islands in general is not highly competitive but competition is at least partly effective or workable.

199. No comment.

Office Response

200. N/A.

A) Question 8

What are your views on the functioning of the fuel sector in the Cayman Islands in general, including:

a) The effectiveness of competition and market outcomes in the fuel sector.
b) The relevance and effectiveness (if any) of countervailing and buyer power in moderating any significant market power by sectoral providers.
c) The extent to which (if any) sectoral providers may engage in collusive or other anti-competitive conduct.
d) Any difficulties in detecting anti-competitive conduct by sectoral providers.
e) Any other issues you consider to be relevant in evaluating the functioning of competition and market outcomes in the fuel sector.

201. No comment.

Office Response

202. N/A.

A) Question 9

What are your views on:

a) The conclusion that increased clarity in the use of market share thresholds in determinations of significant market power may increase legal certainty and administrative tractability, for more accurate administrative determination.
b) The ensuing recommendation that a market share of 40% or higher may result in a presumption of significant market power, which may be potentially rebutted by evidence that barriers to entry into a market are not substantial.

203. No comment.

Office Response

204. N/A.

A) Question 10

What are your views on:

a) The conclusion that the Office's initiatives to increase price transparency in the fuel sector likely enhance the state of competition in the relevant markets.
b) The corollary recommendation that the Office may further enhance price transparency by considering options for temporary price lock-in mechanisms at retail stations coupled with retail stations reporting their prices to the Office.

205. No comment.

Office Response

206. N/A.

A) Question 11

What are your views on:

a) The conclusion that there may be critical importation and other infrastructure "bottlenecks" in the supply chain of the fuel sector that may have an adverse impact on the ability of competition to work effectively in downstream and other related markets.

b) The ensuing recommendation that, in line with the practice in other jurisdictions, the Office consider options for a structured mandated access or "essential facilities" regime, under which an access seeker may gain access to certain critical infrastructure facilities, if those facilities are declared under a structured process to meet certain cumulative criteria (including that they cannot be economically or feasibly duplicated, and that access to them would promote competition in related markets).

207. No comment.

Office Response

208. N/A.

A) Question 12

What are your views on:

a) The conclusion that the material disadvantages to regulated price control regimes outlined in the report outweigh the potential advantages.

b) The ensuing recommendation that price control mechanisms is not the preferred option given the other effective regulatory option outlined in the findings.

209. No comment.

Office Response

210. N/A.

A) Question 13

What are your views on:

a) The conclusion that low or absent barriers to entry to a market generally enhances competitive outcomes in markets, and can do so even if there is no competitive entry, as long as there is a realistic threat of competitive entry.

b) The ensuing recommendation that the Office consider mechanisms to take into account barriers to entry and other factors influencing the level of competition when making decisions more generally.

211. No comment.

Office Response

212. N/A.

A) Question 14

What are your views on the recommendation that the Office consider templates and other streamlining processes to enhance compliance and reduce the compliance burden on reporting stakeholders?

213. No comment.

Office Response

214. N/A.

A) Question 15

Please provide your views on any other matters you consider relevant to this Consultation.

215. In providing views on the Consultation, Private Individual 1 stated (in summary) that the Market Assessment Report does not acknowledge the possibility of anticompetitive horizontal behaviour among sectoral providers, such as horizontal price-fixing agreements or practices, agreed division of market shares, and refusal to deal with new entrants, and does not acknowledge anticompetitive price maintenance agreements between wholesalers with

retailers. Private Individual 1 stated that, in their view, such types of anticompetitive conduct appear to be legal in the Cayman Islands.

Office Response

216. In relation to Private Individual 1's comments to question 15, the Office acknowledges these comments and provides the following observation in response.
217. As it also noted in paragraph 56 above in relation to Rubis' comments to question 8(c) regarding collusive or anti-competitive conduct, the Office notes that the present market study is a wider assessment of the degree of competition in the relevant markets and potential regulatory options rather than being an investigation of any specific anti-competitive conduct by any specific sectoral provider.
218. The Office notes that the types of conduct specified by Private Individual 1 are covered by the existing URC Act as potential contraventions of the law. The Office notes that it is empowered under the URC Act to investigate and prosecute various types of collusive and anti-competitive conduct, and that this is outlined in section 5 of the Market Assessment Report. Section 66 of the URC Act prohibits agreements involving sectoral providers that have as their object or effect the prevention, restriction or distortion of competition in the markets and sectors for which the Office has responsibility. Section 66(2) of the URC Act further specifies that such agreements applies, in particular to agreements, arrangements, decisions or practices which (a) directly or indirectly fix purchase or selling prices or any other trading conditions; (b) limit or control production, markets, technical development or investment; (c) share markets or sources of supply; (d) apply dissimilar conditions to equivalent transactions with other parties, thereby placing them at a competitive disadvantage; or (e) make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts. This prohibition therefore applies to horizontal price-fixing agreements, horizontal market sharing agreements, and also to vertical price maintenance agreements where those vertical price maintenance agreements have an adverse effect on competition. Section 70 of the URC Act prohibits conduct that constitutes an abuse of a dominant position, where a sectoral provider that has significant market power is dominant for this purpose, which in certain circumstances may apply to refusals to deal with new entrants, where said refusal has an anti-competitive effect.
219. As a whole, the Office understands the response and holds the view that its proposed determination is best and is its final position.

4.6 Private Individual 2

A) Question 1

What are your views on the conclusions that:

World market prices of crude oil are a primary factor in determining the prices of refined products and changes in those prices, and that small markets such as the Cayman Islands as price takers in world market for refined products are thereby susceptible to the volatility of world market prices for crude oil.

220. No comment.

Office Response

221. N/A.

A) Question 2

What are your views on the conclusions that:

a) Barriers to entry in the wholesale/bulk gasoline and diesel markets are relatively high.
b) The wholesale/bulk markets for gasoline and diesel are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the wholesale/bulk markets for gasoline and diesel.

222. No comment.

Office Response

223. N/A.

A) Question 3

What are your views on the conclusions that:

a) Barriers to entry in the retail markets for gasoline and diesel are moderately high but not as high as in the wholesale/bulk market levels.
b) The retail markets for gasoline and diesel on Grand Cayman are moderately concentrated but not highly concentrated, and are not strongly competitive.
c) The retail markets for gasoline and diesel on Cayman Brac and Little Cayman are highly concentrated, and are not strongly competitive.
d) None of the retail stations on Grand Cayman has significant market power in the retail markets for gasoline and diesel.
e) Each of the retail stations on Cayman Brac and Little Cayman has significant market power in its retail markets for gasoline and diesel.

224. No comment.

Office Response

225. N/A.

A) Question 4

What are your views on the conclusions that:

a) The barriers to entry to the markets for aviation fuels, namely jet fuel/ kerosene and avgas, are moderately high.
b) The markets for jet fuel/kerosene and avgas are highly concentrated and are not strongly competitive.
c) Rubis and SOL have significant market power in the markets for jet fuel/kerosene, while Rubis has significant market power in market for avgas.

226. No comment.

Office Response

227. N/A.

A) Question 5

What are your views on the conclusions that:

a) The barriers to entry to the market for propane (LPG) are moderate for small scale market entry but substantially higher for larger scale market entry.
b) The market for propane (LPG) is highly concentrated.
c) The market for propane (LPG) is modestly but not highly competitive.
d) Home Gas has significant market power in the market for propane (LPG), but Clean Gas does not have significant market power in this market.

228. No comment.

Office Response

229. N/A.

A) Question 6

What are your views on the conclusions that:

a) The market for acetylene is highly concentrated.
b) The market for acetylene is not competitive.
c) PMIG has significant market power in the market for acetylene.

230. No comment.

Office Response

231. N/A.

A) Question 7

What are your views on the conclusions that:

a) Economies of scale in the fuel sector in the Cayman Islands are significant relative to the market size.
b) The fuel sector in the Cayman Islands in general is not highly competitive but competition is at least partly effective or workable.

232. No comment.

Office Response

233. N/A.

A) Question 8

What are your views on the functioning of the fuel sector in the Cayman Islands in general, including:

a) The effectiveness of competition and market outcomes in the fuel sector.
b) The relevance and effectiveness (if any) of countervailing and buyer power in moderating any significant market power by sectoral providers.
c) The extent to which (if any) sectoral providers may engage in collusive or other anti-competitive conduct.
d) Any difficulties in detecting anti-competitive conduct by sectoral providers.
e) Any other issues you consider to be relevant in evaluating the functioning of competition and market outcomes in the fuel sector.

234. No comment.

Office Response

235. N/A.

A) Question 9

What are your views on:

a) The conclusion that increased clarity in the use of market share thresholds in determinations of significant market power may increase legal certainty and administrative tractability, for more accurate administrative determination.
b) The ensuing recommendation that a market share of 40% or higher may result in a presumption of significant market power, which may be potentially rebutted by evidence that barriers to entry into a market are not substantial.

236. No comment.

Office Response

237. N/A.

A) Question 10

What are your views on:

a) The conclusion that the Office's initiatives to increase price transparency in the fuel sector likely enhance the state of competition in the relevant markets.
b) The corollary recommendation that the Office may further enhance price transparency by considering options for temporary price lock-in mechanisms at retail stations coupled with retail stations reporting their prices to the Office.

238. No comment.

Office Response

239. N/A.

A) Question 11

What are your views on:

a) The conclusion that there may be critical importation and other infrastructure "bottlenecks" in the supply chain of the fuel sector that may have an adverse impact on the ability of competition to work effectively in downstream and other related markets.
b) The ensuing recommendation that, in line with the practice in other jurisdictions, the Office consider options for a structured mandated access or "essential facilities" regime, under which an access seeker may gain access to certain critical infrastructure facilities, if those facilities are declared under a structured process to meet certain cumulative criteria (including that they cannot be economically or feasibly duplicated, and that access to them would promote competition in related markets).

240. No comment.

Office Response

241. N/A.

A) Question 12

What are your views on:

a) The conclusion that the material disadvantages to regulated price control regimes outlined in the report outweigh the potential advantages.
b) The ensuing recommendation that price control mechanisms is not the preferred option given the other effective regulatory option outlined in the findings.

242. No comment.

Office Response

243. N/A.

A) Question 13

What are your views on:

a) The conclusion that low or absent barriers to entry to a market generally enhances competitive outcomes in markets, and can do so even if there is no competitive entry, as long as there is a realistic threat of competitive entry.
b) The ensuing recommendation that the Office consider mechanisms to take into account barriers to entry and other factors influencing the level of competition when making decisions more generally.

244. No comment.

Office Response

245. N/A.

A) Question 14

What are your views on the recommendation that the Office consider templates and other streamlining processes to enhance compliance and reduce the compliance burden on reporting stakeholders?

246. No comment.

Office Response

247. N/A.

A) Question 15

Please provide your views on any other matters you consider relevant to this Consultation.

248. In providing views on the Consultation, Private Individual 2 specifically noted the statement in paragraph 17 of the Consultation paper that "The fuel sector is assessed as being generally highly concentrated and not highly competitive. However, the number of viable competitors is limited by economies of scale and the small market size, and in this context competition is at least partly "workable" and can potentially work to a satisfactory degree. Nevertheless, competition in the fuel sector is only partly effective and can be improved further by targeted policy interventions detailed in Section 6 of the draft Market Assessment Report". In response, Private Individual 2 stated (in summary) the following points: (1) the market study treats ethanol blends as a separate market rather than as a "true competitor"; (2) the Market Assessment Report does not "give sufficient credit to [the Office's] own role in publishing gasoline prices by station"; (3) the "tendency for retail prices to remain close to each other is not a virulently non-competitive phenomenon, but a natural" phenomenon commonly seen in retail of all kinds; (4) fuel prices should not be monitored; and (5) there is value in letting fuel prices rise and the Office should recognize this.

Office Response

249. In relation to Private Individual 2's comments to question 15, the Office acknowledges these comments and provides the following observation in response.

250. In relation to the first observation regarding ethanol blends, the Office notes that Private Individual 2's observation is not entirely accurate. The previously released Market Definition Report defined the relevant markets as follows: (1) gasoline and all gasoline-ethanol blends with 10% or less of ethanol; and (2) gasoline-ethanol blends with more than 10% of ethanol, including pure ethanol. The reason for this delineation, which was provided in detail in the Market Definition Report, hinges on the current state of technology and the "blend wall" for gasoline-ethanol blends in current engines, and would be updated if the "blend wall" changes sufficiently: see the Market Definition Report. The Office also notes (as explained in the Market Definition Report) that market boundaries are defined for competition law and regulation purposes essentially according to whether consumers can and will readily substitute between alternatives (in which case they are defined as being in the same market), or will not (in which case separate markets are defined). Where two products (such as gasoline and high-ethanol blends) are defined as being in separate markets, this does not imply a view (as Private Individual #2 may think) that there is no relation at all between the products. Indeed, there may be strong substitution between them over the longer term, even if they are defined as being separate markets. But it is the willingness and ability by consumers to substitute readily and in the immediate term that is the benchmark for market definition for these purposes, and this is the basis for the market definitions in the Market Definition Report. The Office therefore does not entirely agree with this observation.
251. In relation to the second observation regarding the Office's role in publishing gasoline prices, the Office acknowledges the observation, and points Private Individual 2 to section 6.3 of the Market Assessment Report.
252. In relation to the third observation regarding the tendency for retail prices in different markets including fuels markets to follow one another, and that this does not need to be a "virulently non-competitive phenomenon" but rather a "natural phenomenon", the Office acknowledges the observation and broadly agrees with the observation. As a general observation, it is not against the URC Act for competitors to charge similar prices where this takes place through the natural process of competition and without any agreement or other commensurate communication among competing providers: rather, it is against the URC Act for competing suppliers to agree prices or engage in other comparable conduct with the object or effect of harming competition, as provided under section 66 of the URC Act. The Office notes that this issue is also addressed in section 6.3 of the Market Assessment Report.
253. In relation to the fourth observation that fuel prices should not monitored, the Office respectfully disagrees, noting that the Office also publishes the prices it monitors for the public's benefit (as Private Individual 2 noted themselves in their second point), and noting that increased information for consumers is

widely recognized to enhance the process of competition and consumer outcomes.

254. In relation to the fifth observation regarding the value of letting fuel prices rise, the Office notes that this observation is outside the remit of the current market study and the Office's broader policy remit.

5. Determinations

255. Having considered all the submissions made by the respondents, the Office determines that it will adopt the Fuels Market Assessment contained in the Market Assessment Report outlining the relevant market assessments and regulatory options as proposed in **FS 2021 – 2 – Consultation: Proposed Fuel Market Economic & Regulatory Assessment**, pursuant to sections 5(1) and 10(1)(c) of the FMR Act and reasons set out above, with the following changes:

(a) In relation to the proposed market share thresholds for the determination of significant market power, "40% or higher" is amended to read "40% or higher for a sustained period of time" in sections 2 and 4.4.2 (added words underlined).

(b) In two places in section 6.4.3, "[T]he Jackson Point Facilities are already shared" is amended to read "Certain elements of the Jackson Point Facilities are already shared in use" (added words underlined).

(c) The first sentence of section 4.2.1 is amended to read "The price of crude oil is generally the largest component of the retail price of gasoline and other refined products, including diesel and jet fuel;" (added words underlined).

256. In addition to the changes identified in paragraph 255 above, the Office is making the following other, minor changes to the Market Assessment Report subsequent to the closing of **FS 2021 – 2 – Consultation: Proposed Fuel Market Economic & Regulatory Assessment**:

(a) In section 4.8.1, a typographic error is corrected so that "concentration levels in the acetylene market are at the highest levels possible" is corrected to read "concentration levels in the avgas market are at the highest levels possible" (corrected words underlined).

(b) In section 6.3.3, a typographic error is corrected so that "then to published prices to be at the published level" is corrected to read "then to require prices to be at the published level" (corrected words underlined).

(c) In section 4.4.2, references are amended so that: (i) "competition law regimes, including the competition laws of the United Kingdom and the European Union" is amended to read "competition law regimes in mature

jurisdictions"; and (ii) "This is aligned with current European Commission guidelines on equivalent matters" is deleted.

(d) In section 6.2.3, references are amended so that: (i) "citation to European Union case law" is amended to read "reference to competition law regimes in mature jurisdictions"; (ii) "other jurisdictions, including in particular with those in the United Kingdom" is amended to read "mature jurisdictions"; (iii) "both the European Union and the United Kingdom in the period since the concept of the "object or effect" of harming competition was first used in the Treaty of Rome in 1957 and was subsequently incorporated in United Kingdom competition laws" is amended to read "mature jurisdictions"; (iv) "the United Kingdom and any other relevant jurisdictions" is amended to read "mature jurisdictions"; and (v) "other jurisdictions (such as the United Kingdom)" in footnote 37 is amended to read "mature jurisdictions".

257. The Office considers that the aforementioned changes are either typographical or clarificatory in nature and have no material impact on the outcome of **FS 2021 – 2 – Consultation: Proposed Fuel Market Economic & Regulatory Assessment** or this Determination, and therefore would not change the position of any party if they were to have been included in the **FS 2021 – 2 – Consultation: Proposed Fuel Market Economic & Regulatory Assessment**. They will therefore be included in '***the final Fuels Market Assessment***'.

Annex 1
–
Final Proposed Fuels Market Assessment Report

MARKET ECONOMIC & REGULATORY ASSESSMENT REPORT

A CONSULTATION REPORT PREPARED FOR THE CAYMAN ISLANDS FUEL SECTOR – FUEL MARKET DEFINITION AND ECONOMIC & REGULATORY ASSESSMENT STUDY

29 June 2021

Economics Partners Limited
Authorized by Dr. Derek Ritzmann
derek@economics-partners.com
as adopted by the Chief Fuels Inspector and Director, Fuels Market

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1 INTRODUCTION AND SUMMARY

1.1 Background

The Utility Regulation and Competition Office ("**OfReg**" or the "**Office**") is the independent multi sector regulator with responsibility for the key utility providers including the fuel sector in the Cayman Islands (the "**fuel sector**"). The Utility Regulation and Competition Act (2021 Revision) (the "**URC Act**") is the principal legislation governing the Office's mandate in this respect in the Cayman Islands. Alongside the URC Act, the sector-specific legislation governing the fuel sector are the Dangerous Substances Act (2017 Revision) (the "**DS Act**") and its supporting Regulations ("**DS Regulations**"), and the Fuel Market Regulation Act (2017) (the "**FMR Act**").

1.2 The Market Study

The Office is in the process of establishing a comprehensive regime to effectively monitor and regulate the fuel sector, in order to achieve the Office's mandate of assuring competition, transparency, efficiency and innovation in the markets, along with its continuing function of safety and compliance across the sector. As a part of the establishment of the Office's regulatory role in the fuel sector, the Office is undertaking a comprehensive assessment of the fuel sector entitled the *Cayman Islands Fuel Sector – Fuel Market Definition and Economic & Regulatory Assessment Study (the "**Market Study**")*. The objective of the Market Study is to define the relevant markets within the fuel sector, and to assess the extent and effectiveness of competition within these markets, in order to provide guidance and a foundation for the regulatory mechanisms that will be required, for the Office to achieve its mandate under the various laws. The Market Study intends to reflect all the types and grades of fuels currently offered in the Cayman Islands, and consideration is given to fuels which are under review, and may be introduced to the Island's fuel mix in the near future.

Economics Partners Limited ("**Economics Partners**" or the "**Firm**") is a firm of economic consultants specializing in competition and regulatory economics and market assessments. The Firm was appointed in September 2019 pursuant to an open tender to conduct the Market Study on behalf of and in cooperation with the Office. The Market Study consists of two principal elements:

1. An assessment of and report on the market definitions for competition assessment purposes for the various fuels markets in the fuel sector which are to be assessed during the course of the Market Study (the "**Market Definition Report**"); and
2. An assessment of the effectiveness of competition of all fuels markets defined in the Market Definition Report, and any recommendations regarding potential regulatory models, intervention strategies, recommended market rules, and regulatory determinations to be considered and implemented in the relevant markets in the fuel sector (the "**Market Assessment Report**").

After its appointment, the Firm has undertaken a comprehensive process of information gathering pertaining to the different potential markets in the fuel sector in

the Cayman Islands, and has analysed this information using commonly accepted techniques and approaches of competition assessment.

The present report is the Market Assessment Report and it is the product of the Firm's analysis. The Market Definition Report is attached as an appendix to this report.

1.3 Glossary of Terms

This section describes certain terms used in this report.

Acquisition costs in this report refers to the costs of aquiring the products in each market at the supply and trade level, which includes the costs of crude oil, refinery costs and margins and the supply and trader costs and margins.

Barriers to entry are factors which prevent or deter the entry of new firms into an industry even when incumbent firms are earning high profits.[1]

Economies of scale occur where the average costs per unit of output decrease with the increase in the scale or magnitude of the output being produced by a firm. Comparably, diseconomies of scale occur where the average unit costs of production increase beyond a certain level of output. At the point where the average costs are at a minimum, the minimum efficient scale (MES) of output of a provider is reached.[2]

Market concentration measures the extent to which provision of goods or services in a market as a whole is concentrated between a small number of providers.[3]

A provider's **market share** is a measure of the relative size of that individual provider in an industry or market as measured by the proportion of total output or sales or capacity that the provider accounts for in the relevant market.[4]

Onshore Cayman Islands government charges in this report refer to the Cayman Islands government charges incurred by commercial operators in providing fuel in the Cayman Island and include charges by OfReg, the Department of Commerce and Investment, and the General Registry, but do not include costs of importing and onshoring fuel such as customs duties and port and customs charges.

Regulatory constraints in this report refers to constraints through regulatory or other legal means on the commercial behavior of providers, such as pricing or other constraints, which may (among other things) mitigate the providers' exercise of market power.

Retail costs and margins in this report refer to the costs (including capital and operating costs) incurred in providing fuels at the retail level of the relevant fuel markets, and the margins earned at that level in providing the relevant fuels.

A **sectoral provider** is a provider of goods or services in a utility market or sector for which the Office has specific responsibility under any sectoral legislation specified in

[1] Organisation for Economic Cooperation and Development, Glossary of Industrial Organisation Economics and Competition Law, OECD, 1993 (**"OECD Glossary"**).
[2] OECD Glossary, *op cit*.
[3] OECD Glossary, *op cit*.
[4] OECD Glossary, *op cit*.

Section 2 of the URC Act and which includes the FMR Act.[5] The FMR Act covers those engaged in business in the fuel sector[6], meaning that the URC Act applies to those engaged in business in the fuel sector.

A provider of goods or services has **significant market power** if, either individually or jointly with others, it enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and consumers[7], meaning that it can act to a significant extent free from appreciable competitive constraint, including by charging prices significantly above competitive levels (or to restrict output, product quality, or product innovation below competitive levels) for a sustained period of time.

Wholesale costs and margins in this report refer to the costs (including capital and operating costs) incurred in providing fuels at the wholesale/bulk level of the relevant fuel markets, and the margins earned at that level in providing the relevant fuels.

[5] URC Act, section 2(1) and Schedule 2.
[6] FMR Act, section 2(1).
[7] URC Act, section 2(3).

2 SUMMARY OF FINDINGS

The Market Definition Report defined the relevant markets in the fuel sector for regulatory purposes; these market definitions are captured in Section 3 of this report.

This Market Assessment Report in Section 4 analyses the effectiveness of competition in those markets, concluding as follows:

- The wholesale/bulk markets for gasoline and diesel (including blends up to the "blend wall") are assessed as being highly concentrated and not strongly competitive. Rubis Cayman Islands Limited, Rubis Eastern Caribbean SRL, and other entities controlled within the Rubis corporate group (together, "**Rubis**"), and Sol Petroleum (Cayman) Limited, Antilles Trading Company SEZC, and other entities controlled within the SOL corporate group (together, "**SOL**"), each have significant market power in these markets;
- The retail markets for gasoline and diesel (including blends up to the "blend wall") on Grand Cayman are assessed being as moderately concentrated and moderately competitive. Individual retail stations on Grand Cayman do not have significant market power in these markets;
- The retail markets for gasoline and diesel (including blends up to the "blend wall") on Cayman Brac and Little Cayman are assessed as being highly concentrated and not strongly competitive. Retail stations on Cayman Brac and Little Cayman have significant market power in these markets;
- The markets for jet fuel/kerosene and avgas are assessed as being highly concentrated and not strongly competitive. Rubis and SOL have significant market power in the market for jet fuel/kerosene, and Rubis has significant market power in the market for avgas;
- The market for propane (LPG) is assessed as being highly concentrated, and modestly but not highly competitive. Home Gas Limited ("**Home Gas**") has significant market power in this market, but Clean Gas Limited ("**Clean Gas**") does not have significant market power; and
- The market for acetylene is assessed as being highly concentrated and not strongly competitive. PM Industrial Gas Limited ("**PMIG**") has significant market power in this market.

These findings are also summarized in the table attached to this report as Appendix 1.

There is currently not sufficient commercial activity in the following product markets to make an assessment on the degree of competition in these markets:

- Ethanol and gasoline-ethanol blends above the "blend wall";
- Biodiesel and diesel-biodiesel blends above the "blend wall";
- Natural gas (LNG and CNG);
- Butane;
- Hydrogen; and
- Methanol.

The fuel sector is generally highly concentrated and is not highly competitive. However, the number of viable competitors is limited by economies of scale and the small market

size, and in this context competition is at least partly “workable” and can potentially work to a satisfactory degree. Nevertheless, competition in the fuel sector is only partly effective and can be improved further by targeted policy interventions detailed in Section 6 of this report.

The Market Assessment Report in Section 5 then considers the current regulatory regime in the fuel sector, and in Section 6 considers a number of options regarding potential regulatory models, intervention strategies, potential market rules, and regulatory determinations to be considered and implemented in the relevant markets in the fuel sector. These options and recommendations are:

- Adopting guidelines and policy procedures in relation to different areas of anti-competitive conduct, including mergers control and abuse of dominance, as a means of increasing stakeholder awareness and fostering increased enforcement of the competition laws (the Office is currently preparing some guidelines and policy documents);
- Retaining the current guidelines on market definition and significant market power in their entirety, subject to the specific amendment so that where a sectoral supplier has a market share of 40% or higher for a sustained period of time, this would be sufficient for the Office to conclude that this supplier has significant market power in all circumstances, rebuttable only by circumstances where there are no appreciable barriers to entry to that sector;
- Enhancements to the Office’s price monitoring activities, and the rules applying to retailers;
- Consideration of a mandated open access regime for certain critical, “bottleneck” infrastructure, particularly infrastructure required to import bulk fuels;
- Carefully consider available policy options that can make competition work effectively, before resorting to the introduction of direct price controls;
- Consideration of enhanced mechanisms to reduce barriers to entry and to take into increased account barriers to entry and competition considerations in exercising the Office’s wider regulatory functions; and
- Mechanisms to improve the cooperation of stakeholders and outcomes in the Office’s information gathering functions.

3 MARKETS DEFINED IN THE MARKET DEFINITION REPORT

The Market Definition Report, attached as an appendix to this report, analyzes the market definitions applying to different fuels on sale and potentially on sale in the Cayman Islands. Markets were defined as follows:

On a functional Level, the markets for all relevant fuels are segmented into separate markets according to the relevant level of the supply chain, consisting of:

1. The importation of the relevant fuel;
2. The wholesale and bulk sale and marketing of the relevant fuel; and
3. The retail sale and marketing of the relevant fuel.

On a product dimension, the markets are delineated as follows:

1. Gasoline, and all gasoline-ethanol blends with 10% or less of ethanol.
2. Gasoline-ethanol blends with more than 10% of ethanol, including pure ethanol.
3. Petroleum-derived diesel, and all diesel-biodiesel with 20% or less of biodiesel.
4. Diesel-biodiesel blends with more than 20% biodiesel, including pure biodiesel.
5. Jet fuel and kerosene.
6. Propane (LPG).
7. Natural gas (including LNG and CNG).
8. Aviation gas.
9. Butanes.
10. Acetylene.
11. Hydrogen (potential future market).
12. Methanol (potential future market).

On a geographic dimension, the markets are delineated as follows:

1. World-wide for the market for imported fuels.
2. Cayman Islands-wide for the markets for the aviation fuels (jet fuel and kerosene, and aviation gas).
3. Grand Cayman for all other fuels at the wholesale and retails supply chain levels.
4. Cayman Brac for all other fuels at the wholesale and retails supply chain levels.
5. Little Cayman for all other fuels at the wholesale and retails supply chain levels.

Each of these market definitions is based on current information, including available information on technological factors, consumer behaviour, regulatory standards, pricing information including pricing correlations, and other information – the full details are provided in the Market Definition Report.

The Market Definition Report also clarifies that, should relevant factors change in a material way in the future, such as changes in technological factors or regulatory standards affecting fuel blends, then the relevant market definitions may need to be adjusted to reflect those changes. In particular, the Office may in the future change the relevant market definitions to take into account changes in the relevant "blend wall" in relation to gasoline-ethanol and diesel-biodiesel blends. Such a change may be appropriate where:

- The state of engine technology changes so that a majority of the motor vehicles in use in the fuel sector can readily use higher-level ethanol blends interchangeably, and in particular without material modification or risk of engine damage; and
- Other relevant regulatory standards change in a way that is aligned with the changes in engine technology.

The Market Definition Report further notes that not all the defined relevant markets, including the markets for hydrogen and methanol, are currently being actively supplied, but are instead defined as potential future markets.

4 MARKET STRUCTURE AND PERFORMANCE

4.1 Market Structure and Market Performance

Market structure is a central factor in understanding the performance of markets. The structure of a market comprises a number of important elements, including:

- The number of participants in that market;
- The concentration of those markets;
- Barriers to entry and expansion;
- Regulatory constraints on firms' behavior;
- Dynamism of market growth and innovation in that market.

These and other factors influencing market performance and outcomes are similarly central factors in determining the extent to which any market player may have significant market power in that market.

This section considers the markets defined in the Market Definition Report and draws conclusions regarding the market outcomes and degrees of competition in those markets.

4.2 Price determination in fuels markets

The retail price of fuels such as gasoline broadly consists of four main components:

- The price of the crude raw material for the fuel, such as crude oil in the case of gasoline;
- Refining costs and profits;
- Distribution and marketing costs and profits; and
- Taxes.

4.2.1 The price of the crude raw material, such as crude oil

The price of crude oil is generally the largest component of the retail price of gasoline and other refined products, including diesel and jet fuel; the price of the comparable crude raw material is similarly the largest component of the retail price of other fuels such as propane. The price of crude oil and other raw materials is essentially determined by the forces of supply and demand in an international market, and it varies over time as factors influencing demand and supply of crude oil. Particular grades and varieties of crude oil are essentially fungible (interchangeable and substitutable) within those grades and varieties, and broadly (even if not perfectly) substitutable with other grades and varieties. This means that factors influencing supply and demand in crude oil (and other raw materials) markets influence the supply-demand balance in those markets, and therefore the market price of those materials changes over time in line with changes in world demand and supply of those raw materials.

International crude oil markets are generally characterized by the presence of a large number of buyers and large number of sellers. As a consequence, international crude

oil markets can be broadly characterized as competitive. Certain suppliers, such as Saudi Aramco, are large enough as suppliers that they possess appreciable power to affect world market prices, by increasing or reducing the volume of their output that they supply into the market. However, these large suppliers aside, most participants in world crude oil markets are not large enough to have appreciable market power to affect world market prices; rather, world market prices are broadly formed by the joint interaction of a large number of buyers and sellers, with none (except a small number of very large national producers) having appreciable power to affect world market prices.

The price of crude oil is generally the *largest* component of the price of gasoline, and it is also generally the most *variable* component of the price of gasoline. As a result, changes in the price of gasoline are generally attributable to and caused to a significant extent by variations in the price of crude oil.

A small market such as the Cayman Islands is too small in terms of demand volumes to be able to influence world market prices of crude oil.

4.2.2 Refining costs and profits

Essentially all fuels consumed in the Cayman Islands are imported in a refined state, and the vast majority of imported refined fuels are sourced from refineries in the United States. Refining costs and profits vary seasonally and by region, including by different regions in the United States. Regional variations occur for a number of reasons, including that different regions (around the world and within the United States) use slight variations in grades and qualities of crude oil and other raw materials. Systematic seasonal variations also occur for different reasons, including that different precise fuel formulations are sometimes used in different seasons to influence the amount of air pollution caused by the fuels. Less systematic seasonal variations can take place due to slight variations over time in the precise chemical composition of the crude oil being produced and brought to market at that time. Additional factors influencing refining costs include the characteristics of the gasoline produced, which in turn depends on the type of crude oil being used, and the type of processing technology available at the refinery where it is produced. Furthermore, gasoline prices are also affected by the cost of other ingredients that may be blended into the gasoline, including ethanol fuel. Finally, there are regular seasonal variations in demand for fuels including gasoline – gasoline demand in the United States generally increases in the summer, which generally results in higher ex-refinery prices in the United States, which almost invariably results in higher ex-refinery prices for product being shipped to the Cayman Islands.

A small market such as the Cayman Islands is too small in terms of demand volumes to be able to influence world market prices of refined products. The result of this is that the Cayman Islands are essentially a pure “price taker” in the market for refined fuel products; no actions that the Cayman Islands could take, whether market actions or regulatory actions, would be able to affect market outcomes in these broader international markets.

4.2.3 *Distribution and marketing costs and profits*

Once the refined fuel has been purchased at the refinery gate, it must then be transported to its location of consumption, distributed to retailers, marketed and sold by retailers. The resulting shipping, wholesale or bulk handling, distribution, and retail marketing and handling costs and profits are a further component of the price of fuels. In fuels sold in the Cayman Islands, the fuels are generally shipped to the Cayman Islands in bulk tankers and then moved onshore into bulk storage containers by way of the pipelines at Jackson Point in Grand Cayman and Creek in Cayman Brac, or shipped in smaller containers (most commonly in ISO Containers) and then moved onshore at a container port (most commonly at the Grand Cayman port). The fuels are then delivered to the individual retailing locations, such as by tanker truck to individual retail stations, or sold in bulk quantities to large consumers.

Retail stations in the Cayman Islands are generally operated by independent businesses that purchase gasoline from the wholesale marketers and resell the fuels to the retail public. Some of the retail stations are owned by the independent businesses, while others are owned by the wholesale marketers but leased to the independent operators. Retail station operators' costs vary between different retailers and generally include wages and salaries, benefits, equipment, lease or rent payments, insurance, overhead, and government taxes. It may be noted that even retail stations that are close to each in location can have different traffic patterns, rents, and sources of supply that affect their relative prices; at the same time, one can observe some trends that some retail prices for regular gasoline may be the same for full-service and self-serve alike, irrespective of the retail station location.

4.2.4 *Government taxes*

The final main component of fuels prices is government taxes. The primary taxes on fuels in the Cayman Islands are import tariffs under the Customs Tariff Act, levied at the moment that the respective fuels are imported into the Cayman Islands. Under this law, gasoline currently attracts an import duty of Cayman Islands Dollars ("***KYD***") 75 cents per Imperial Gallon ("***IG***"), diesel fuel is subject to an import duty of KYD 85 cents per IG (except that the duty is KYD 25 cents per IG where it is supplied to an electricity generator and supplier), aviation gas ("***avgas***") and jet fuel (kerosene) are chargeable at KYD 28 cents per IG if the fuels are consumed locally but not if they are used for international transportation, while all other fuel oils, basic petroleum products, propane, butane, and other gases attract an ad valorem import duty of 22% of their value. Certain waivers in effect for the Sister Islands mean that customs duties for fuels consumed on the Sister Islands are KYD 12.5 cents per IG for gasoline and KYD 60 cent per IG for diesel.

4.2.5 *The structure of fuel prices in the Cayman Islands*

This section describes a representative price build-up of fuel prices in the Cayman Islands by reference to the price of regular gasoline sold on Grand Cayman, based on average prices and costs across the relevant activities in the period of March 2020, that is, immediately prior to the commencement of the COVID-19 pandemic. The purpose of

selecting this product and this time period is to analyze a more "typical" and therefore representative situation in the fuel sector, rather than the extraordinary situation created by the pandemic.

This representative price build is presented in the form of approximate ranges, rather than as precise figures, in order to protect the commercially confidential information of the market participants, and to safeguard against the possibility of such confidential information being extracted or inferred from more precise figures. The Office is in possession of the precise figures.

The final pump price was comprised of the following elements:

Acquisition costs. Acquisition costs of the refined gasoline from abroad averaged in the range from KYD 1.74 to 1.92 per IG (or in the range from 38% to 42% of the pump price). These acquisition costs in turn were comprised of:

- The cost of crude oil, which averaged in the range from KYD 1.19 to 1.23 per IG (or in the range from 26% to 27% of the pump price);
- Refinery costs and margins, which averaged in the range from KYD 0.46 to 0.55 per IG (or in the range from 10% to 12% of the pump price); and
- Supply and trader costs and margins, which averaged in the range from KYD 0.09 to 0.14 per IG (or in the range from 2% to 3% of the pump price).

Transportation and onshoring costs. Transportation and onshoring costs of the refined gasoline from the point of acquisition abroad averaged in the range from KYD 0.82 to 0.96 per IG (or in the range from 18% to 21% of the pump price). These transportation and onshoring costs in turn were comprised of:

- Freight, insurance, and pipeline costs, which combined averaged in the range from KYD 0.09 to 0.14 per IG (or in the range from 2% to 3% of the pump price);
- Cayman Islands customs duties, which averaged in the range less than KYD 0.05 per IG (or less than 1% of the pump price); and
- Port and customs charges, which averaged in the range less than KYD 0.05 per IG (or less than 1% of the pump price).

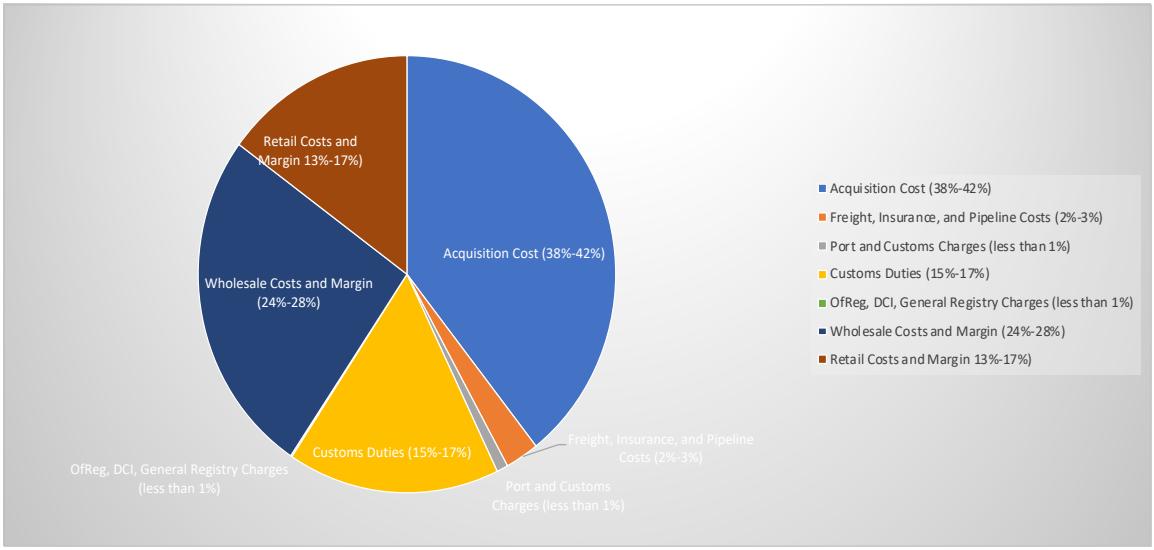
Onshore Cayman Islands government charges. Onshore Cayman Islands government charges of KYD 0.005 per IG (or 0.1% of the pump price), including OfReg, Department of Commerce and Investment, and General Registry charges.

Wholesale costs and margins. Wholesale level costs and margins from the point of onshoring averaged in the range from KYD 1.10 to 1.28 per IG (or in the range from 24% to 28% of the pump price).

Retail costs and margins. Retail level costs and margins averaged in the range from KYD 0.59 to 0.78 per IG (or in the range from 13% to 17% of the pump price).

This price build up can be represented graphically as follows:

Chart 4-1: Representative price build-up of prices in the Cayman Islands fuel sector



4.3 Factors in assessing the degree of competition in a market

4.3.1 The number of participants in the market

The number of participants in a market provides a first indication of the structure of the market and the level of competition in a market. The most competitive markets tend to be those with a large number of sellers, none of which has appreciable market power, because customers have a large number of alternatives suppliers if one company raises its prices above the competitive level. At the other end of the spectrum, monopoly markets are those characterized by being supplied by only one seller, which typically therefore has a much higher degree of market and pricing power, because customers do not have alternative suppliers if the only supplier raises its prices above the competitive level. Oligopoly markets are markets with a smaller number of sellers with some degree of market and pricing power. Outcomes in oligopoly markets depend critically on other factors in addition to the number of sellers in the market, however it can be said that, as a general trend, outcomes in oligopoly markets are more competitive than in monopoly markets but not as competitive as in perfectly competitive markets.

4.3.2 Concentration of those markets

The overall concentration level in a market may also provide useful information about the competitive situation.

The larger a seller's market share, the more likely it is to have market power. Similarly, the more concentrated a market, the more likely is that the market will be characterized by the exercise of market power by sellers in that market.

Three common types of concentration measure are commonly employed in competition analysis:

- **Market shares** measure the market share of individual firms in that market. Market shares are measured by the most appropriate measure of firms' output in the relevant market, which can be the relevant firm's sales volumes, sales revenues, productive capacity, or other measure of productive output as appropriate in the relevant market. The market share is particularly used to assess a single firm's market share, for instance as part of the assessment of whether or not that firm has a significant market power;
- **CRx ratios** measure the combined market shares of the x largest suppliers in that market. For example, the CR2 ratio would measure the total market share of the two (2) largest suppliers in that market. Concentration ratios are particularly used to assess if a market is oligopolistic; and
- The **Herfindahl-Hirschman Index ("*HHI*")** is a measure of concentration in the whole market. It is calculated by summing the squares of the individual market shares of all the firms in the market. The HHI thereby measures the concentration in the whole relevant market and taking into account all suppliers in that market, while gives proportionately greater weight to the market shares of the larger firms. The HHI index is therefore particularly used to assess the level of concentration of a market as a whole, and the degree of change in the level of concentration of the market as a whole, for instance after a merger.

It is common practice to evaluate HHI measures of market concentration according to whether or not they reach certain thresholds. For instance, in using HHI measures in the context of merger analysis, the European Commission classifies markets according to their HHI levels (after the merger) as follows:

- HHI below 1,000 = unconcentrated market;
- HHI between 1,000 and 2,000 = moderately concentrated market; and
- HHI above 2,000 = highly concentrated market.

By way of example, a monopoly market where one firm alone supplies 100% of the market would have an HHI of 10,000. In another example, a duopoly market where the two suppliers each supply 50% of the market would have an HHI of 5,000. In each case, the market would be classified as highly concentrated, with a high degree of likelihood of market power being exercised in that market, and relatively uncompetitive outcomes resulting. By contrast, a much less concentrated with 20 suppliers each supplying 5% of the market would have an HHI of only 500 and would therefore be classified as an unconcentrated market, with a low degree of likelihood of market power being exercised in that market, and relatively competitive outcomes resulting.

4.3.3 Barriers to entry and contestability of markets

Barriers to market entry by new competitors (or barriers to market expansion by existing competitors) are generally accepted as being important factors in determining the extent and effectiveness of market competition.

The entry of new competitors into a market can provide an important source of competitive constraint on incumbents. If new entrants are able to offer customers an appropriate alternative source of supply at the right time, any attempt by existing market players to exercise market power (by raising prices, or reducing quality, or other exercises of market power) will tend to be unsuccessful as customers will be able to switch to the new entrants. New entry, or credible threats of new entry, are therefore potentially important competitive constraints on the exercise of market power.

Barriers to such competitive entry can therefore dampen the competitive constraints in a market. Everything else being equal, a market with low barriers to entry will tend to have more competitive outcomes than the comparable market which has high barriers to entry. In contrast, in markets where there are barriers to entry that either prevent firms from entering the market altogether or delay and impede entry to such a degree that the existing market is sheltered from competitive constraint for a significant period, the market outcome tends to be less competitive.

It is important to note that actual entry is not necessarily required for the competitive threat of potential entry to constrain competition. It can be sufficient for competitive entry to be a realistic prospect, a realistic threat from potential entrants, for suppliers in the market to be competitively constrained in their behavior by the threat of potential entry. A supplier that would face immediate and substantial competitive entry if it raised its price materially above the competitive level would be constrained from raising its price by the threat of entry; by contrast, a supplier that is protected from competitive entry because of high barriers to entry will be in a stronger position to raise its price above the competitive level.

In this way, barriers to entry are critical in determining market outcomes, even if there is no actual entry. This in turn can mean that a market with low barriers to entry can see competitive outcomes even if there are not a large number of suppliers in that market. By contrast, the presence of high barriers to entry can be an important factor in creating and entrenching significant market power for market incumbents, by protecting them from the threat of competitive entry.

A barrier to entry is any factor that prevents or hinders a new competitors from entering a market, where that new entry would otherwise be capable of defeating a price increase caused by an exercise of market power (such as an increase in prices). New entry must generally be timely, likely, and sufficient in scope and nature to be an effective competitive constraint.

Barriers to entry can take different forms, including the following:

- Legal or regulatory barriers, including licensing conditions, import tariffs, explicit restrictions on the number of market participants, some intellectual property rights, certain environmental regulations, and other government regulations;

- Structural barriers to entry, including the existence of sunk costs (costs that cannot be recovered by re-selling or otherwise re-using the relevant entry investment in case of exit) that increase the risks and costs of entry, high customer switching costs such as search costs or transaction costs, significant economies of scale that require achieving large volumes before entry can be profitable, and difficulties of access to key inputs or customers;
- Strategic barriers to entry, including threats of retaliation against new entrants (e.g. by way of price wars), brand proliferation by incumbents as a strategic device to deter entry, and other strategic behavior by incumbents used to deter entry.

Section 6.6.2 of this report extends this analysis of barriers to entry in the context of recommendations to the Office regarding points of action that may reduce barriers to entry in the fuel sector and thereby enhance competitive outcomes in the relevant markets.

4.3.4 Regulatory constraints on firms' behavior

Regulatory constraints on firms' behavior may mitigate market power, in particular constraints on the exercise of market power by way of pricing or similar constraints.

4.3.5 Dynamism of market growth and innovation

In general, markets characterized by high degrees of growth, innovation, or other manifestations of dynamic markets, may be less likely to give rise to enduring market power by sellers in those markets. In a static market, competitive entry is more difficult because entrants have to compete market share and customers away from their existing suppliers, rather than being able to compete for new customers in a growing market.

4.3.6 The impact of vertical relationships

Competition in markets can be affected by vertical relationships between operators in a market and other, vertically-related markets. Vertical relationships can take a number of different forms, including vertical agreements (such as between a wholesaler and a retailer) and vertical integration (where suppliers in different levels of the supply chain are under common ownership). While vertical relationships are common throughout essentially all industries and in many cases are competitively benign or even efficient, in some cases they can also cause competition concerns. One avenue of concern may be if a supplier has significant market power in one market, and vertical relationships permit that supplier to extend (or "leverage") that market power into another, vertically-related market. As an illustrative example, if an upstream supplier has control of an input that is important for downstream production (for instance, control over critical import infrastructure), then that upstream supplier may be able to reduce or even eliminate competition in the downstream market by limiting access by downstream competitors to that input. Comparably, if a supplier has control over the distribution points for a product, that supplier may be able to limit access to those distribution points to companies supplying that product, and thereby reduce

competition in the market for that product. The analysis of vertical relationships, and the prospects for "leveraging" behavior, particularly through the control of critical inputs and distribution channels, is therefore an important part of a competitive analysis.

4.3.7 Effective or "workable" competition

High degrees of competition are most regularly found in markets where a large number of suppliers compete for consumers' custom, and no supplier has any significant market power. However, not all markets are capable of efficiently sustaining a large number of suppliers – this includes the case where economies of scale (and the cost efficiencies of exploiting economies of scale) and restricted market demand (including where the market population is small, such as in the Cayman Islands) favor a smaller number of larger suppliers.

In recognition of such competing considerations, it is common to consider "effective competition" or "workable" competition as a suitable benchmark to assess the effectiveness of competition in a market[8], rather than the textbook benchmark of "perfect competition" in which there are by definition a large number of small suppliers. The concept assesses whether there are adequate levels of competitive performance in markets, even if those market may not be ideally structured.

While there is no single, unified definition of when competition is sufficient to be "effective" or "workable", a common benchmark is that an industry can be judged to be "effectively" or "workably" competitive if, taking into account the structural and dynamic characteristics of the market, one cannot identify public policy measures that would materially improve the performance of the market (resulting in greater social gains than social losses).[9] In terms of industry structure, rather than assessing that an industry should have as many suppliers as possible, the appropriate benchmark under this concept is that the number of suppliers should be at least large *as economies of scale permit*, or more specifically, where there are at least as many suppliers as can reach the minimum efficient scale[10] in that market, taking into account the total demand volume in that market.

This report adopts appropriate benchmarks of "effective" competition in assessing the degree of competition in the fuel sector in the Cayman Islands, including in the conclusions contained in Section 4.12 regarding the competitive performance of the fuel sector as a whole. This is consistent with the Office's mandate under the URC Act, under which the Office is required "to promote appropriate effective and fair competition".[11]

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[8] OECD Glossary, *op cit*.

[9] Markham, Jesse W. (1950), "An Alternative Approach to the Concept of Workable Competition", *The American Economic Review*, p. 361.

[10] Minimum efficient scale in an industry is the lowest production volume at which economies of scale are fully exploited and long-run average total costs are minimized. The minimum efficient scale will therefore vary from market to market and location to location, according to production technology and other relevant factors.

[11] URC Act, section 6(1)(b).

4.4 Factors in assessing if a supplier has a significant degree of market power

4.4.1 Significant market power

Suppliers do not operate in isolation. There is generally an ongoing process of rivalry between suppliers in terms of the prices, service, innovation, and quality they offer to potential customers for their products to be attractive to customers. This ongoing process of rivalry means that suppliers are generally constrained to some degree in their commercial decisions (such as their pricing decisions) by the commercial decisions of other suppliers.

Market power, by contrast, is the ability to make commercial decisions (such as to increase prices) with some degree of freedom from tight competitive constraints from competitors. Where a supplier cannot raise its prices above competitive levels or its competitors price levels without losing all its customers to competitors, it has no market power; by contrast, where a supplier can raise its prices relative to its competitors' prices yet still retain some of its customers, it has some degree of market power. A supplier has *significant* market power where it is free to a significant degree from competitive constraint. Significant market power enables a supplier to charge prices above competitive levels (or to restrict output, product quality, or product innovation below competitive levels) for a sustained period of time. Such a supplier with significant market power enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of its competitors, customers, and ultimately consumers.

4.4.2 Significant market power under the URC Act

The URC Act provides that the Office may determine that a sectoral provider has significant market power in a relevant market, against criteria that the Office is to publish relating to the definition of relevant markets in the respective sectors and the assessment of market power, where such a determination enables the Office to impose conditions on said sectoral provider (this is outlined in more detail in Sections 5.2.1 and 5.2.2 of this report). Moreover, the URC Act specifies that the criteria the Office must publish relating to the assessment of market power for the purposes of determinations that a sectoral provider has significant market power must include references to the sectoral provider's market share, the sectoral provider's ability to influence market conditions, the sectoral provider's access to financial resources, the sectoral provider's experience in providing products to the market, and any other criteria considered relevant by the Office.[12]

The Office has already published guidelines on the definition of relevant markets and the assessment of significant market power.[13] These guidelines are well considered and in line with competition law practice in jurisdictions with broadly comparable competition law regimes in mature jurisdictions. Specifically, the guidelines are in line

[12] URC Act, Section 44(3).

[13] OfReg, Publication OF 2017 – G2 – Guidelines, Guidelines on the Criteria for the Definition of Relevant Markets and the Assessment of Significant Market Power, published 20 September 2017 (**"OfReg Market Definition and Significant Market Power Guidelines"**).

with common modern practice in other jurisdiction in respect of the following important aspects:

- "Significant market power" and "dominance" are taken to be essentially equivalent concepts;
- Significant market power should be assessed on a case by case basis, taking into account the specific circumstances of each sectoral provider, on the basis of the range of factors (specified and listed in the guidelines) that may determine whether a provider has significant market power;
- The market share of the provider is an important factor in determining whether the provider has significant market power, but it is not the only factor. A high market share alone may not support a finding of significant market power if the provider is otherwise closely competitively constrained, while a provider may have significant market power even with a lower market share if other factors result in that provider being relatively free of competitive constraint;
- Nevertheless, market shares of 40% or higher for a sustained period of time tend to be indicative of significant market power, and very high market shares of 50% or higher are generally strong evidence of significant market power other than in unusual circumstances where barriers to entry are very low or the provider is otherwise closely competitively constrained; and
- An important additional relevant factor, in addition to market shares, is whether there are barriers to entry to that market (and the closely related factor of barriers to expansion), as providers in markets without barriers to entry are generally significantly more tightly competitively constrained by potential competition and the threat of entry than providers in markets with significant barriers to entry. The importance of barriers to entry in determining the degree of competition (and a provider's market power) is also explained in Section 6.6.2 of this report.

As is outlined in more detail in the recommendations in Section 6.2.2, the guidelines are generally well drafted and appropriate, but they may be amended so that a market share of 40% or higher for a sustained period of time may gives rise to a rebuttable presumption of significant market power, rebuttable by circumstances where barriers to entry to that sector are not appreciable.

4.4.3 Previous findings of significant market power in the fuel sector

Currently, the following sectoral providers are deemed to have significant market power by inclusion in a Schedule to the FMR Act:

- Rubis Cayman Islands Limited in the automotive fuel market;
- SOL Petroleum Cayman Limited in the automotive fuel market;
- Antilles Trading Company SEZC[14] in the supplies & trading markets for petroleum products; and
- Home Gas Limited in the liquid petroleum gas market.

[14] Formerly SOL Energy Resources Inc. The entity's former name is reflected in the relevant Schedule to the FMR Act.

4.5 The market for gasoline

The market for gasoline has been defined as including all different octane grades of gasoline, and gasoline-ethanol blends up to 10% ethanol (that is, within the current "blend wall"). As is noted in the Market Definition Report and in Section 3 of this report, should the relevant technological, regulatory, and market factors underpinning this "blend wall" for the purposes of this market definition change in the future, then the Office may adjust the relevant market definitions accordingly.

4.5.1 The structure of the market[15]

The gasoline market at the wholesale/bulk level is essentially supplied by two suppliers: Rubis and SOL. "Rubis" in this context includes the different relevant entities controlled within the Rubis corporate group including Rubis Cayman Islands Limited and Rubis Eastern Caribbean SRL, and "SOL" in this context includes the different relevant entities controlled within the SOL corporate group including Sol Petroleum (Cayman) Limited and Antilles Trading Company SEZC.

Both Rubis and SOL import gasoline in bulk for on-sale to retail stations.

At the wholesale/bulk level, Rubis and SOL each supplies roughly equal proportions of the market. As a result, the wholesale/bulk gasoline market is highly concentrated on all measures of market concentration outlined in Section 4.3.2 of this report and applied in the analysis of markets throughout the this report:

- Each wholesale/bulk seller of gasoline has a high market share;
- The CR2 concentration ratio of the wholesale/bulk gasoline market is very high, and consistent with a highly concentrated market; and
- The HHI of the wholesale/bulk gasoline market is in the range 4,000-6,000, which results in a classification of the market as "highly concentrated".

These measures are all very high and are strongly indicative that the gasoline market at the wholesale/bulk level is not highly competitive.

The third meaningful participant in the gasoline market that imports and handles bulk quantities of gasoline is Refuel. Refuel imports gasoline by way of ISO Containers. However, Refuel is vertically integrated and imports gasoline only for sale at its own retail station, and does not participate as a seller in the wholesale/bulk market. Moreover, there are capacity limitations on the size of vessels that are able to dock at the Grand Cayman port and on the volumes of fuels that can be imported through ISO Containers. These capacity limitations may potentionally create capacity constraints in the future on the ability of Refuel (or any other supplier reliant on fuel shipments by way of ISO Containers) to participate as a supplier in the fuel sector.

At the retail level, the gasoline market is less concentrated in the Grand Cayman geographic market. There are 25 retail stations operating on Grand Cayman, including marinas selling to the public. There are also 3 mobile refuelers, selling to commercial and industrial consumers.

[15] More precise market shares are known to the Office but are redacted and replaced by broad ranges here for the purposes of protecting market participants' commercial confidentiality.

Without taking into account ownership of multiple retail stations, the relevant concentration measures would indicate that the retail level is quite unconcentrated:

- All retail stations (taken individually) have market shares under 10% of the Grand Cayman retail market for gasoline;
- The CR2 concentration ratio is in the range 0%-20%, commensurate with an unconcentrated market; and
- The HHI of the retail gasoline market is under 500, which would be consistent with a classification of the market as "moderately concentrated".

However, certain owners and operators of retail stations control more than one retail station. When one takes into account such control of multiple retail stations, the relevant concentration levels indicate that the retail level is in fact moderately concentrated:

- One retail station operator supplies in the range of 30%-40% of the market, and several other retail station operators supply over 10% of the market.
- The CR2 concentration ratio is in the range of 45%-55%, commensurate with a moderately concentrated market; and
- The HHI of the retail gasoline market is in the range 1,500-2,000, which results in a classification of the market as "unconcentrated".

As a result, when one takes into account that groups of multiple retail stations may be controlled jointly, the concentration measures are modestly high and indicative that the retail gasoline market is moderately concentrated market.

Moreover, in the Cayman Brac and Little Cayman retail markets for gasoline, concentration levels are substantially higher than in the Grand Cayman retail markets for gasoline. There are two retail stations on Cayman Brac, each run by different operators, and one retail station on Little Cayman. Market shares and concentration levels on Cayman Brac and Little Cayman are therefore very high: the CR2 concentration ratio is 100% on both islands, and the HHI is in the range 4,000-6,000 on Cayman Brac and the maximum of 10,000 on Little Cayman. These measures are all very high and are strongly indicative that the gasoline market at the retail level on the Sister Islands is not highly competitive.

4.5.2 Assessment of the degree of competition in the market

The wholesale/bulk markets for gasoline are assessed as being highly concentrated and not strongly competitive:

- The market is effectively a duopoly, with only two suppliers participating at the wholesale/bulk level of the gasoline market.
- As outlined above, the market shares and market concentration levels in the wholesale/bulk gasoline market demonstrate that this market is highly concentrated, which in turn indicates that this duopoly market is not highly competitive.
- Consideration of barriers to entry further supports the conclusion of a market that is not highly competitive. Barriers to entry in the wholesale/bulk gasoline market are relatively high. First, licensing requirements, while serving valuable

functions from other policy perspectives, make entry into the wholesale/bulk gasoline market relatively difficult and subject to a relatively onerous process. Second, entry requires investing in substantial infrastructure requirements including complex bulk storage facilities, which requires expenditures of substantial upfront entry capital costs, the bulk of which are likely to be sunk (meaning that the capital costs cannot be (fully) recovered by on-sale of the capital equipment in case of exit). This raises the costs of entry, and thereby the barriers to entry, substantially. Moreover, the entry costs appear to be compounded by a lack of available and suitable locations for the construction of bulk storage. Third, cost-effective entry into the wholesale/bulk market likely requires that the new entrant be able to import fuels in bulk from a tanker rather than by way of ISO Containers, which in turn requires construction of a new pipeline or the ability to use the existing pipeline at Jackson Point and Creek berths. Together, these barriers to entry are highly likely to entrench the current market power of the incumbents in this market by preventing effective competitive entry.

- This market power is not currently restrained by regulatory constraints on the firm's pricing behavior.
- Finally, the market is characterized by relatively stable and moderate demand growth over time rather than rapid growth, and in terms of the relatively low level of innovation characterizing this industry. This long-term market stability further enhances the incumbents' market power and reduces the degree of competition in this market.

The retail market for gasoline on Grand Cayman is assessed as being moderately concentrated and not strongly competitive:

- The gasoline retail market on Grand Cayman is characterised by a relatively large number of competing suppliers. However, once operation and control of multiple retail stations is taken into account, the market may be better characterised by several large multi-station retailers and a number of smaller single-station retailers.
- Market shares and market concentration levels indicate that the market is moderately concentrated and indicate that this market is likely to be moderately competitive but not highly competitive.
- Barriers to entry appear to be moderately high, but not as high as in the wholesale/bulk market levels. Licensing requirements, in addition to serving valuable functions from other policy perspectives, are appreciable and thereby operate as a barrier to entry, but they are also appreciably lower than for bulk facilities and thereby less of a barrier to entry than in relation to bulk facilities. Entry also requires investing in substantial infrastructure requirements including in the retail site, with substantial upfront sunk capital costs. However, retail entry does not face the same issue of requiring access to an import pipeline. Barriers to entry, while appreciable, are therefore not as high as in the wholesale/bulk markets.
- The retailers' modest market power is not currently restrained by regulatory constraints on the firm's pricing behavior.

- Finally, the market is characterized by relatively stable and moderate demand growth over time rather than rapid growth, and in terms of the relatively low level of innovation characterizing this industry.

In addition, because of the high levels of concentration, the retail markets for gasoline on Cayman Brac and Little Cayman are assessed as being not strongly competitive.

These factors taken together suggest strongly the retail market for gasoline is modestly but not highly competitive.

4.5.3 Assessment of significant market power in the market

Based on the concentration measures and the other indications outlined in Section 4.5.2 above, the Firm concludes that both Rubis and SOL have significant market power in the wholesale/bulk market for gasoline. The Firm also concludes that each of the retail stations on the Sister Islands has significant market power in their respective retail markets for gasoline. However, the Firm concludes that none of the retail stations on Grand Cayman have significant market power in the retail market for gasoline.

As is noted in Section 4.4.3 of this report, certain sectoral providers have previously been deemed to have significant market power in certain markets by operation of legislation. These include: Rubis Cayman Islands Limited in the automotive fuel market; SOL Petroleum Cayman Limited in the automotive fuel market; and SOL Energy Resources Inc. in the supplies & trading markets for petroleum products. "Automotive fuels" and "petroleum products" both encompass and include gasoline. These prior findings of significant market power in the fuel sector are consistent with the Firm's conclusions that the relevant entities controlled within the Rubis and SOL corporate groups, respective, have significant market power in the wholesale/bulk market for gasoline.

4.6 The market for diesel[16]

The market for diesel has been defined as the market for petroleum-derived diesel and diesel-biodiesel blends up to 20% biodiesel (that is, within the current "blend wall"). As is noted in the Market Definition Report and in Section 3 of this report, should the relevant technological, regulatory, and market factors underpinning this "blend wall" for the purposes of this market definition change in the future, then the Office may adjust the relevant market definitions accordingly.

4.6.1 The structure of the market

Diesel markets in the Cayman Islands have a very similar structure to gasoline markets. The diesel market at the wholesale/bulk level is essentially supplied by two suppliers, namely Rubis and SOL. Both Rubis and SOL import diesel in bulk for on-sale to retail stations. The most significant difference between the diesel and gasoline markets is that Rubis and SOL also sell significant quantities of bulk diesel to the Cayman Islands

[16] More precise market shares are known to the Office but are redacted and replaced by broad ranges here for the purposes of protecting market participants' commercial confidentiality.

electricity generators, with Caribbean Utilities Company ("CUC") on Grand Cayman sourcing bulk diesel from both Rubis and SOL under long-term supply arrangements, and the Cayman Brac Power and Light Company ("CBPL") in the Sister Islands sourcing diesel from Rubis under a long-term supply arrangement. At the wholesale/bulk market for diesel, similar to the wholesale/bulk gasoline market, Rubis and SOL each supplies roughly equal proportions of the market, with resulting concentration measures being as follows:

- Each wholesale/bulk seller of diesel has a high market share;
- The CR2 concentration ratio of the wholesale/bulk diesel market is very high, and consistent with a highly concentrated market; and
- The HHI of the wholesale/bulk diesel market is in the range 4,000-6,000, which results in a classification of the market as "highly concentrated".

These measures are all very high and are strongly indicative that the diesel market at the wholesale/bulk level is not highly competitive.

As with gasoline, the third meaningful participant in the diesel market that imports and handles wholesale/bulk quantities of diesel is Refuel, importing diesel by way of ISO Containers. However, as with its activities in the gasoline market, Refuel is vertically integrated and imports diesel only for sale at its own retail station, and at the time of writing of this report did not participate as a seller in the wholesale/bulk market (the Firm notes that Refuel has indicated that it is entering the wholesale/bulk market). Moreover, as is outlined in Section 4.5.1 in relation to gasoline, there are capacity limitations at the Grand Cayman port in relation to the volumes of diesel that can be imported through ISO Containers, which may potentially create capacity constraints on the ability of Refuel (or any other supplier reliant on fuel shipments by way of ISO Containers) to participate as a supplier in markets for diesel.

Certain other market participants import bulk quantities of diesel in ISO Containers for their own use. For instance, the Thompson Shipping Group imports diesel for use within the group but without participating in any market as a seller.

At the retail level, the diesel market is similarly less concentrated in the Grand Cayman geographic market, but with some degree of concentration when one takes into account that some of the retail stations are jointly controlled as groups of retail stations. The same 25 retail stations and 3 mobile refuelers on Grand Cayman that sell gasoline also sell diesel at the retail level. When one takes into account that certain owners and operators of retail stations control more than one retail station, the relevant concentration levels indicate that the retail is level is moderately concentrated:

- One retail station operator supplies in the range of 30%-40% of the market, and several other retail station operators supply over 10% of the market.
- The CR concentration ratio is in the range of 45%-55%, commensurate with a moderately concentrated market; and
- The HHI of the retail diesel market is in the range 1,500-2,000, which results in a classification of the market as "unconcentrated".

As a result, when one takes into account that groups of multiple retail stations may be controlled jointly, the concentration measures are modestly high and indicative that the retail diesel market is moderately concentrated market.

These measures are therefore all low and are strongly indicative of an absence of competition problems in the retail diesel market.

However, the diesel retail markets in Cayman Brac and Little Cayman are similarly much more highly concentrated. There is only one retail station currently selling diesel on each of Cayman Brac and Little Cayman (although the second retail station on Cayman Brac has previously sold diesel and could recommence diesel sales). Market shares and concentration levels in the diesel market at the retail level on Cayman Brac and Little Cayman are therefore both at the highest level, with the CR2 concentration ratio being 100% on both Sister Islands, and the HHI being the maximum of 10,000 on both Sister Islands. These measures are all very high and are strongly indicative that the diesel market at the retail level on the Sister Islands is not competitive.

4.6.2 Assessment of the degree of competition in the market

The wholesale/bulk markets for diesel are assessed as not being strongly competitive:

- Similar to the wholesale/bulk market for gasoline, the comparable market for diesel is effectively a duopoly, with only two suppliers participating at the wholesale/bulk level of the diesel market.
- As outlined above, the market shares and market concentration levels in the wholesale/bulk diesel market demonstrate that this market is highly concentrated, which in turn indicates that this duopoly market is not highly competitive.
- The barriers to entry to the wholesale/bulk diesel market are essential identical to those in the wholesale/bulk gasoline market as described above. These barriers to entry taken together are highly likely to entrench the current market power of the incumbents in this market by preventing effective competitive entry.
- This market power is not currently restrained by regulatory constraints on the firm's pricing behavior.
- Finally, the diesel market is quite static in terms of market demand, which is quite stable over time, and in terms of the relatively low level of innovation characterizing this industry. This long-term market stability further enhances the incumbents' market power and reduces the degree of competition in this market.

The retail market for diesel on Grand Cayman is assessed as being moderately concentrated and not strongly competitive:

- The diesel retail market on Grand Cayman is characterised by a relatively large number of competing suppliers. However, once operation and control of multiple retail stations is taken into account, the market may be better characterised by several large multi-station retailers and a number of smaller single-station retailers.
- Market shares and market concentration levels indicate that the market is moderately concentrated and that this market is likely to be moderately competitive but not highly competitive.

- The barriers to entry to the retail diesel market are essential identical to those in the retail gasoline market as described above. These barriers to entry taken together, while appreciable, are therefore not as high as in the wholesale/bulk markets.
- The retailers' modest market power is not currently restrained by regulatory constraints on the firm's pricing behavior.
- Finally, the market is characterized by relatively stable and moderate demand growth over time rather than rapid growth, and in terms of the relatively low level of innovation characterizing this industry.

These factors taken together suggest strongly the retail market for diesel is modestly but not highly competitive.

4.6.3 Assessment of significant market power in the market

Based on the concentration measures and the other indications outlined in Section 4.6.2 above, the Firm concludes that both Rubis and SOL have significant market power in the wholesale/bulk market for diesel. The Firm also concludes that each of the retail stations on the Sister Islands has significant market power in their respective retail markets for diesel. However, the Firm concludes that none of the retail stations on Grand Cayman have significant market power in the retail market for diesel.

As is noted in Section 4.4.3 of this report, certain sectoral providers have previously been deemed to have significant market power in certain markets by operation of legislation. These include: Rubis Cayman Islands Limited in the automotive fuel market; SOL Petroleum Cayman Limited in the automotive fuel market; and SOL Energy Resources Inc. in the supplies & trading markets for petroleum products. "Automotive fuels" and "petroleum products" both encompass and include diesel. These prior findings of significant market power in the fuel sector are consistent with the Firm's conclusions that the relevant entities controlled within the Rubis and SOL corporate groups, respective, have significant market power in the wholesale/bulk market for diesel.

4.7 The market for jet fuel and kerosene

This market has been defined as the market for jet fuel and kerosene.

4.7.1 The structure of the market

There are two principal suppliers of jet fuel and kerosene in the market: Rubis, which supplies aviation operators at Owen Roberts International Airport (ORIA) and Charles Kirkconnell International Airport (CKIA), and SOL, which supplies aviation operators at ORIA. The market for jet fuel and kerosene in the Cayman Islands can therefore be

characterized as a duopoly. Rubis and SOL each supplies roughly equal proportions of the market, resulting in the following market concentration measures: [17]

- Each seller of jet fuel and kerosene has a high market share;
- The CR2 concentration ratio of the jet fuel and kerosene market is 100%, which is indicative of a highly concentrated market; and
- The HHI of the jet fuel and kerosene market is in the range 4,000-6,000, which means that market is classified as "highly concentrated".

These measures are all very high and are strongly indicative that the jet fuel and kerosene market is not highly competitive.

4.7.2 Assessment of the degree of competition in the market

The market for jet fuel and kerosene is assessed as not being strongly competitive:

- The market for jet fuel and kerosene is effectively a duopoly, with only two suppliers.
- As outlined above, the market shares and market concentration levels demonstrate that this market is a highly concentrated duopoly market, which in turn indicates that the market is not highly competitive.
- The barriers to entry to the market are assessed as being moderately high. This is due to the significant upfront capital costs relative to the market size. An additional potential barrier to entry is the practical requirement to obtain the permission of the Cayman Islands Aviation Authority to serve aviation customers. These barriers to entry taken together are likely to entrench the current market power of the incumbents in this market by deterring effective competitive entry.
- This market power is not currently restrained by regulatory constraints on the firm's pricing behavior.
- Market participants also face certain competitive constraints from providers outside of the Cayman Islands – while an aviation customer may not commonly travel to another destination solely to refuel, in the case of a flight traveling to or from another location outside the Cayman Islands in any event, that customer may have some choices (albeit limited by fuel tank capacities and similar technical constraints) about refuelling in the Cayman Islands or at that other location. This choice modestly increases the competitive pressure on the providers in the Cayman Islands.
- Finally, the jet fuel and kerosene market is quite static in terms of market demand, which is quite stable over time, and in terms of the relatively low level of innovation characterizing this industry. This long-term market stability further enhances the incumbents' market power and reduces the degree of competition in this market.

[17] More precise market shares are known to the Office but are redacted and replaced by broad ranges here for the purposes of protecting market participants' commercial confidentiality.

4.7.3 Assessment of significant market power in the market

Based on the concentration measures and the other indications outlined in Section 4.7.2 above, the Firm concludes that both Rubis and SOL have significant market power in the market for jet fuel and kerosene.

As is noted in Section 4.4.3 of this report, certain sectoral providers have previously been deemed to have significant market power in certain markets by operation of legislation. These include SOL Energy Resources Inc. in the supplies & trading markets for petroleum products. "Petroleum products" encompasses and includes jet fuel and kerosene. These prior findings of significant market power in the fuel sector are consistent with the Firm's conclusions that the relevant entities controlled within the SOL corporate group have significant market power in the market for jet fuel and kerosene. The Firm additionally finds that the relevant entities controlled within the Rubis corporate group have significant market power in the market for jet fuel and kerosene.

4.8 The market for aviation gas

This market has been defined as the market for aviation gas ("**avgas**").

4.8.1 The structure of the market

Rubis is the only importer or supplier of avgas in the Cayman Islands; Rubis supplies aviation operator customers at ORIA. As a result, concentration levels in the avgas market are at the highest levels possible, with the only supplier having a 100% market share, and the market having an HHI of 10,000 which results in a classification of a "highly concentrated market". The monopoly structure of this market is strongly indicative that the avgas market is not competitive.

4.8.2 Assessment of the degree of competition in the market

The market for avgas is assessed as not being competitive:

- The very high degree of concentration of the avgas market in a monopoly market is commensurate with a low level of competition.
- The barriers to entry to the market are assessed as being moderately high. This is due to the significant upfront capital costs relative to the market size. An additional potential barrier to entry is the practical requirement that operators must obtain the permission of the CIAA to serve aviation customers. These barriers to entry taken together are likely to entrench the current market power of the incumbents in this market by deterring effective competitive entry.
- This market power is not currently restrained by regulatory constraints on the firm's pricing behavior.
- Finally, the avgas market is quite static in terms of market demand, which is quite stable over time, and in terms of the relatively low level of innovation characterizing this industry. This long-term market stability further enhances the

incumbents' market power and reduces the degree of competition in this market.

4.8.3 Assessment of significant market power in the market

Based on the concentration measures and the other indications outlined in Section 4.8.2 above, the Firm concludes that Rubis has significant market power in the market for avgas.

As is noted in Section 4.4.3 of this report, certain sectoral providers have previously been deemed to have significant market power in certain market by operation of legislation. The Firm's conclusions relating to significant market power in relation to avgas therefore support a determination of significant market power in a market.

As is noted in Section 4.4.3 of this report, certain sectoral providers have previously been deemed to have significant market power in certain markets by operation of legislation. The Firm's understanding is that avgas is considered to be a "petroleum product" but not considered to be an "automotive fuel" under this deeming provision. Rubis, the only supplier of avgas in the market, has therefore not been previously deemed to have significant market power in the market for avgas. The Firm concludes that the relevant entities controlled within the Rubis corporate group have significant market power in the market for jet fuel and kerosene in addition to the previously operative deeming of significant market power.

4.9 The market for propane (LPG)

The market for propane (in its liquid form known as liquified petroleum gas or "**LPG**") has been defined as the market for propane gas and propane gas blends able to be used on propane-based equipment.

4.9.1 The structure of the market

Home Gas has supplied the Cayman Islands market for propane for over 60 years, as the sole supplier until around 2018. During 2018, Clean Gas entered the market as the second provider of propane, constructed storage facilities in Industrial Park and received a permit to sell propane from the Office in March 2018. This means that the market since Clean Gas's entry has been effectively a duopoly in the supply of propane (LPG). Other participants including Go Gas Ltd supply Grand Cayman with propane-fuelled equipment, but do not supply the fuel itself.

The market can be characterized as a duopoly. Home Gas supplies substantially higher shares of the market (supplying within a range of 60%-90% of the market) than Clean Gas (supplying within a range of 10%-40% of the market)[18]. This results in the following market concentration measures:

[18] More precise market shares are known to the Office but are redacted and replaced by broad ranges here for the purposes of protecting market participants' commercial confidentiality.

- The larger supplier has a high market share, and the smaller supplier supplies the remainder of the market.
- The CR2 concentration ratio of the market is 100%, as there are only two suppliers, which is indicative of a highly concentrated market; and
- The HHI of the propane (LPG) market is within a range of 6,000-8,000, which means that market is classified as "highly concentrated".

These measures are all very high and are strongly indicative that the market for propane is not highly competitive.

4.9.2 Assessment of the degree of competition in the market

The market for propane is assessed as being modestly but not highly competitive:

- The market for propane (LPG) is effectively a duopoly, with only two suppliers.
- The market shares and market concentration levels demonstrate that this market is a highly concentrated duopoly market, which in turn indicates that the market is not highly competitive.
- The barriers to entry to the market are assessed as depending on the scale of the entry. For smaller scale entry, barriers to entry are moderate, due to moderate entry costs in terms of capital costs of acquiring the required bulk storage and customer tanks. However, for larger scale entry, barriers to entry are substantially higher, because of the very high level of difficulty to the new entrant of constructing facilities that permit larger-scale bulk imports of the fuel. It is noted that this market has been characterized by recent entry in 2018, which demonstrates that competitive entry is possible at smaller scales. However, the greater difficulty of entry on larger scales places a cap on the degree to which competitive entry can place a competitive constraints on an incumbent sectoral provider.
- There are market indications that this competition caused a material decrease in prices towards more competitive levels. However, this has taken place in the context of upper limits on the scale of feasible entry, and therefore upper limits on the degree to which a potential entrant is able to competitively constrain a market incumbent.
- This market power is not currently restrained by regulatory constraints on the firm's pricing behavior.
- The propane market in recent years has been quite stable in terms of market demand, in the sense that market demand growth has been quite moderate. Moreover, the industry is characterized by relatively low levels of innovation, with innovation taking place by incremental process improvements at most. This relative long-term market stability enhances the incumbents' market power and reduces the degree of competition in this market. However, the Firm notes that there are some increases in the construction in commercial and residential properties that may result in a future increase in the consumption of propane and therefore increased growth in demand for propane.

4.9.3 Assessment of significant market power in the market

Based on the concentration measures and the other indications outlined in Section 4.9.2 above, the Firm concludes that Home Gas has significant market power in the market for propane (LPG). However, also concludes that Clean Gas does not have significant market power in this market, as its market share is below the levels that would be consistent with a determination of significant market power.

As is noted in Section 4.4.3 of this report, certain sectoral providers have previously been deemed to have significant market power in certain markets by operation of legislation. These include Home Gas Limited in the liquid petroleum gas market. The Firm's conclusions, namely that Home Gas has significant market power in this market but Clean Gas does not, are consistent with these prior findings of significant market power in this market.

4.10 The market for acetylene

This market has been defined as the market for acetylene.

4.10.1 The structure of the market

PMIG is the only seller of acetylene in the Cayman Islands. PMIG imports acetylene into the Cayman Islands in ISO Containers and stores the fuel in PMIG's storage facilities on Grand Cayman. As a result, concentration levels in the acetylene market are at the highest levels possible, with the only supplier having a 100% market share, and the market having an HHI of 10,000 which results in a classification of a "highly concentrated market".

4.10.2 Assessment of the degree of competition in the market

The market for acetylene is assessed as not being competitive:

- The very high degree of concentration of the acetylene market is commensurate with a low level of competition.
- As a potential partial mitigating factor, it does not appear that barriers to entry into acetylene supply are excessively high. Storage facilities are likely to be the most significant barrier to entry; however, market information indicates that the relevant storage tanks can be rented rather than needing to be constructed afresh, which their reduces the impact as a barrier to entry.
- The retailers' modest market power is not currently restrained by regulatory constraints on the firm's pricing behavior.
- Moreover, the market appears to be quite stable both in terms of market demand and in terms of the level of innovation in the market.

4.10.3 Assessment of significant market power in the market

Based on the concentration measures and the other current indications outlined in Section 4.10.2 above, the Firm concludes that PMIG has significant market power in

the market for acetylene. However, as noted, should there be material competitive entry into the market for acetylene that captures substantial market shares and otherwise places significant competitive constraints on PMIG, this competitive entry may result in a future alteration of this conclusion.

As is noted in Section 4.4.3 of this report, certain sectoral providers have previously been deemed to have significant market power in certain markets by operation of legislation. The Firm's understanding is that acetylene is not considered to be either a "petroleum product" or an "automotive fuel" under this deeming provision. PMIG, the only supplier of acetylene in the market, has therefore not been previously deemed to have significant market power in the market for acetylene. The Firm concludes that PMIG has significant market power in the market for acetylene in addition to the previously operative deeming of significant market power.

4.11 The potential markets for ethanol/blends, biodiesel/blends, natural gas, butane, hydrogen, and methanol

The potential future markets have been defined as:

- The market for ethanol and gasoline-ethanol blends with more than 10% ethanol (beyond the current "blend wall");
- The market for biodiesel and diesel-biodiesel blends with more than 20% biodiesel (beyond the current "blend wall");
- The market for natural gas (in different states also known as liquified natural gas, "**LNG**", or compressed natural gas, "**CNG**");
- The market for butane gas and predominantly butane gas blends;
- The market for hydrogen; and
- The market for methanol.

All of these markets are potential future markets in the Caymans Islands. There is, as yet, no commercial activity relating to any of these fuels in the Cayman Islands. As these markets are potential future markets without current market participants or market activity, it is not possible to assess the degree of competition in this market or to attribute significant market power to any participant.

In relation to natural gas, it is noted that there are ongoing discussions regarding the introduction of natural gas as a significant fuel in the Cayman Islands. These discussion focus particularly around a movement towards the use of natural gas as a substitute fuel for diesel in electricity generation, and the construction of an LNG terminal on Grand Cayman to enable this substitution of fuels. However, at present, to the Firm's knowledge and at the time of writing, no firm plans or steps have been taken yet in this direction.

4.12 Assessment of the state of competition in the fuel sector in the Cayman Islands

This report adopts the benchmark of "effective" competition (outlined in Section 4.3.7) in assessing the degree of competition in the fuel sector in the Cayman Islands.

The Cayman Islands are a price taker in world markets for refined fuel products. Within the Cayman Islands, the fuel sector is not highly competitive. Most markets are highly concentrated, and consumers have few or no competitive alternatives, resulting in sectoral providers in many markets having significant market power. However, a significant driver of this outcome is the interaction between the small market size and economies of scale on the supply side. In many markets, exploitation of efficient and cost-effective economies of scale on the supply side would not be consistent with a large number of suppliers. This is particularly the case at the wholesale/bulk levels of the gasoline and diesel markets, where capital costs of the commensurate facilities such as large storage tanks, exacerbated by a relative scarcity of appropriate locations on the Islands for such facilities, points towards the market being supplied by a relatively small number of suppliers. The retail level for gasoline and diesel, where economies of scale exist but are relatively less significant, is more consistent with a larger number of suppliers located in different geographic locations, in line with observed market outcomes. This means that markets in the fuel sector, while being concentrated, can be assessed as being partly consistent with the "workable competition" benchmark that the number of suppliers should be at least as large as economies of scale permit.

The Firm was tasked with assessing the degree of competition in the market, including the question of whether competition has failed. It can be observed that a number of the markets assessed have more than one supplier, who compete with each other to at least a modest degree, and several markets have evidenced that competitive entry is possible and has taken place. Accordingly, the Firm assesses that competition in the fuel sector is at least partly effective or workable and cannot be said to have failed.

However, a high-level criterion as to whether competition is fully effective is whether there are no policy measures available that would further improve the degree of competition in the market and improve consumer outcomes (see Section 4.3.7). Based on this criterion, the Firm judges that competition is only partly effective and can be improved further by targeted policy interventions. Competition in the fuel sector can work to a satisfactory degree, but there are currently certain bottlenecks to competition that can be improved. Section 6 contains the Firm's recommendations regarding these policy measures.

5 Regulation in Fuels Markets in the Cayman Islands

This section outlines the legal regulatory framework applying to the regulation of the fuel sector in the Cayman Islands.

5.1 The URC Act and other relevant laws

The URC Act is the principal legislation governing the Office's mandate as an independent, multi-sector regulator with responsibility for the key utility providers including the fuel sector in the Cayman Islands. Alongside the URC Act, the sector-specific legislation governing the fuel sector are the DS Act along with the associated DS Regulations, and the FMR Act.

5.2 The role of the URC Act in addressing impediments to competition

The URC Act is a comprehensive competition and regulatory regime for sectoral providers in a regulated sector. A modern competition law generally features the following three core substantive rules against anti-competitive conduct:

1. A rule against anti-competitive agreements between enterprises;
2. A rule against an abuse of a dominant position or position of significant market power by an enterprise; and
3. A rule against anti-competitive mergers or acquisitions by or between enterprises.

The URC Act features these three core substantive rules.

In addition to the competition law provisions, the URC Act also contains the key features of a comprehensive economic regulation regime applicable to providers in defined utilities sectors. It permits the Office to adopt broad regulatory rules applicable to such sectoral providers, in particular those that have significant market power.

It is noted that the URC Act only applies to "sectoral providers" providing goods or services in the defined sectors, and that Cayman Islands law does not have a cross-sector competition law applying to companies not operating in the defined sectors.

5.2.1 The Office may determine that a sectoral provider has significant market power

The URC Act empowers the Office to determine that a sectoral provider has significant market power in a relevant market.[19] Under the URC Act, a sectoral provider will be considered under the URC Act to have significant market power where, either individually or jointly with another, it enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and consumers.[20] A sectoral provider is a person who provides goods or services in a sectoral utility, where a sectoral utility is a utility market or sector for which

[19] URC Act, Part 7.
[20] URC Act, section 2(3).

the Office has specific responsibility under sectoral legislation.[21] The fuel sector is such a sector.

The Office may make a determination regarding significant market power where it has established and published criteria relating to the definition of relevant markets in the respective sectors, and against which market power may be assessed for the purposes of making a determination that there is market power.[22] The URC Act specifies that such criteria for the determination of market power are to include references to the sectoral provider's market share, its ability to influence market conditions, its access to financial resources, its experience in providing products to the market, and any other criteria considered relevant by the Office.[23] Moreover, under the URC Act, sectoral providers are deemed under the URC Act to have significant market power in the termination of utility services on their own networks unless the Office determines otherwise.

5.2.2 The Office may impose conditions on sectoral providers with significant market power

The consequences of a determination that a sectoral provider has significant market power are that the Office may impose certain conditions on those sectoral providers. The conditions that may be imposed under the URC Act and that are potentially relevant to the fuel sector are wide-ranging and may include:[24]

- Imposing price controls and requiring a cost-recovery orientation of prices;
- Requiring the use of cost accounting systems of a type that facilitates price controls and cost-recovery orientation of prices;
- Imposing conditions on retail prices in general;
- Requiring the publication of reference offers ensuring equivalence of access to any services or facilities in which the sectoral provider has significant market power, at tariffs or prices reflecting the sectoral provider's costs;
- Requiring the submission of regulatory accounts or financial statements separating out the key business activities of the sectoral provider;
- Requiring the offer of services to businesses comprising the sectoral providers (and their parent companies) on a non-discriminatory, commercial basis;
- Requiring the provision of standard terms of business, which should be published and accessible to customers;
- Requiring the provision of service level guarantees with associated compensation payments to retail customers; and
- Any other obligations that the Office considers necessary in pursuance of the relevant sector policy.

[21] URC Act, section 2(1).
[22] URC Act, section 44.
[23] URC Act, section 44(3).
[24] URC Act, section 45.

In addition to the Office's powers to determine that a sectoral provider has significant market power, the Legislative Assembly of the Cayman Islands may deem a sectoral provider to have significant market power by operation of legislation.[25]

5.2.3 The Office is empowered to exercise merger control over regulated sectors

The Office is empowered to exercise merger control in respect of any person or entity to whom a licence is granted under any sectoral legislation (a **"licensee"**).[26]

The overall rule in the URC Act is that there may not be a change in control of a licensee without the consent of the Office. Upon being notified of an intended change of control of a licensee, the Office is required to form a view as to whether the change of control would have, or be likely to have, the effect of substantially lessening competition in the Islands (an additional public interest test in the law is not relevant to the fuel sector). Moreover, a licensee is not permitted to issue, transfer, dispose of or otherwise deal in more than ten per cent of voting shares in a licensee, without the consent of the Office. The Office may refuse to give its consent where the resulting transaction may result in a lessening of competition in the provision of the services (as relevant to the fuel sector).[27]

This essentially means that any mergers or acquisitions (or similar transactions) in the fuel sector are subject to the Office's merger control decision. The test the Office is to exercise is a competition test: the Office may block a transaction where a "substantial lessening of competition" will or is likely to result from the transaction. This competition test is broadly aligned with equivalent competition tests in most other jurisdictions, including in the United Kingdom *Competition Act 1998*.

5.2.4 The Office is empowered to prevent other anti-competitive practices in regulated sectors

The Office is also empowered to prevent other anti-competitive practices in regulated sectors.[28] It is empowered to prevent agreements (and decisions, concerted practices, and other related practices) involving sectoral providers in regulated sectors that may have as their object or effect to prevent, restrict, or distort competition in a relevant market in the Islands.[29] Is it also empowered to prevent a sectoral provider that has a dominant position in a market for which the Office has responsibility from abusing that dominant position.[30]

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[25] Currently, the following sectoral providers are deemed to have significant market power by inclusion in a Schedule to the FMR Act:
- Rubis Cayman Islands Limited in the automotive fuel market;
- SOL Petroleum Cayman Limited in the automotive fuel market;
- SOL Energy Resources Inc. in the supplies & trading markets for petroleum products; and
- Home Gas Limited in the liquid petroleum gas market.

[26] URC Act, Part 8 and section 2.
[27] URC Act, section 46.
[28] URC Act, Part 12.
[29] URC Act, section 66.
[30] URC Act, section 70.

5.3 The Office's information gathering powers under the URC Act

The Office currently has a wide range of information gathering powers including by compulsion.[31] The Office is empowered to require all information that it considers necessary for the purpose of carrying out its functions or exercising its powers under this or any other law. Without limitation, the information the Office may require includes any information that it requires to ascertain whether there is or has been a contravention of the law (including contraventions of Part 12 of the URC Act relating to anti-competitive practices). The Office is furthermore empowered to require information both in a manner that it specifies within a reasonable time period specified by the Office. A compulsory information request must be in writing and be accompanied by a reason for the request. The Office is also empowered to seek penalties against persons or entities that are subject to a compulsory information request if they fail to comply with such a request.

5.4 Regulatory regimes in other comparable jurisdictions

This section provides a high-level overview of current regulatory regimes in fuel markets in comparable jurisdictions.

In determining comparable jurisdictions, the focus was on jurisdictions within the same geographic region as the Cayman Islands. The following criteria were considered:

- Comparable population sizes;
- Comparable jurisdictional geographies; and
- Comparable fuel market characteristics including the number of major fuel suppliers and importers, aggregate fuel consumption levels, aggregate storage capacity, and other aspects of fuel market infrastructure including import facilities.

Based on these criteria, the following jurisdictions were selected for a comparable regulatory overview: The Bahamas; St Lucia; Barbados; and the Turks and Caicos Islands (**"TCI"**).

5.4.1 The Bahamas

The Bahamas has a current population of around 353,000, broadly comparable to the Cayman Islands population of around 68,000. The country is an archipelago comprised of a number of relatively small islands, with Nassau and Freeport being the main population centers, meaning that the national geography is also broadly comparable to that of the Cayman Islands.

The fuel sector in the Bahamas is supplied by three importers: Rubis, SOL, and Sun Oil. two large importers (Rubis and SOL) who import fuels in bulk, and one smaller importer (Sun Oil) who imports fuels by way of ISO containers. Rubis and SOL import fuels in bulk by way of a berth that is owned by Parkland, with the throughput fee being negotiated between the parties, and Sun Oil imports fuels by way of ISO containers.

[31] URC Act, section 9.

The relevant markets are regulated by the national Consumer Protection Commission (formerly the Prices Commission), which is empowered by the Price Control Act. Regulation is at both the wholesale and the retail levels. The Price Control Act does not specifically reference petroleum products as a category or individual fuels specifically; rather, it gives very broad powers to the relevant Minister to institute regulations relating to goods and services "essential to the well being of the community" for purposes of achieving "their equitable distribution and their availability at fair prices" and to "ensure generally that the resources available to the community are used in a manner calculated to serve the interest of the community". Fuel prices in the Bahamas are regulated under these broad statutory powers.

5.4.2 St Lucia

St Lucia has a current population of around 166,000. The country is a single, relatively small island. Both the relatively small population and the relatively small island geography of the country makes St Lucia broadly comparably to the Cayman Islands.

Similarly to the Cayman Islands, the fuel sector in St Lucia is supplied by two large importers (Rubis and SOL) who import fuels in bulk; the Firm understands that there are no material smaller importers of fuels into St Lucia. Bulk imports are brought in by way of a berth and storage facility owned by a third party, with a storage fee being paid to the facility owner by importers.

The relevant markets are regulated by price regulation at the retail level by the national Ministry of Commerce. The price-regulated fuel products are diesel, gasoline, kerosene, and LPG. The regulatory mechanism is that the Ministry of Commerce sets, and periodically (generally monthly) updates and publishes, the fixed allowable retail prices of these petroleum products. Prices are set broadly by reference to a cost pass-through mechanism.

5.4.3 Barbados

Barbados has a current population of around 302,000. The country is a single, relatively small island. Both the relatively small population and the relatively small island geography of the country makes Barbados broadly comparably to the Cayman Islands.

Similarly to the Cayman Islands, the fuel sector in Barbados is supplied by three large importers who import fuels in bulk. These importers are two private sectoral provider, Rubis and SOL, and one state-owned sectoral provider, the Barbados National Oil Company Limited ("BNOCL"). The Firm understands that there are no material smaller importers of fuels into Barbados. The Firm understands that bulk imports of gasoline and diesel are brought in by way of a berth and storage facility owned by the Government of Barbados through a state-owned entity the Barbados National Terminal Company Limited ("BNTC"). Once imported, the fuels are sold to BNOCL, and then distributed by BNOC or repurchased by wholesalers under Petroleum Product Supply Agreements for distribution to retailers.

The relevant markets are regulated at both the wholesale and the retail levels by the national Ministry of Energy, Small Business and Entrepreneurship ("MESBE"). Price

regulation is carried out under the Price Control Regulations issued under the Miscellaneous Controls Act. The price-regulated petroleum products are diesel fuel, gasoline, kerosene, and LPG. The regulatory mechanism is that the MESBE sets, and periodically updates and publishes, the maximum allowable wholesale and retail prices of these petroleum products.

5.4.4 Turks and Caicos Islands

The TCI has a current population of around 57,000, closely comparable to the Cayman Islands population of around 68,000. The country is an archipelago comprised of a number of relatively small islands, with Providenciales and Grand Turk being the main population centers, meaning that the national geography is also quite closely comparable to that of the Cayman Islands.

Similarly to the Cayman Islands, the fuel sector in the TCI is supplied by two large importers (Rubis and SOL) who import fuels in bulk, and one smaller importer (Sun Oil) who imports fuels by way of ISO containers. Bulk imports are brought in by way of a berth that is owned by the Government of the TCI, with both major bulk importing entities having seabed lease to berth vessels and to discharge fuels.

The relevant markets in the TCI are fully liberalized from a price setting perspective and there are no price controls or comparable restrictions.

5.4.5 Jurisdictional comparison and conclusions

In all of the jurisdictions considered, governments undertake some form of price monitoring, including within a price regulation framework. In all cases, a central purpose of the monitoring is to monitor how domestic fuels prices are developing compared with international price trends. Price transparency is a common policy objective across these jurisdictions. The Office's price monitoring activities are in line with activities in these comparable jurisdictions.

Price controls operate in three of the four jurisdictions (the Bahamas, St Lucia, and Barbados) but not in the TCI. While none of the jurisdictions makes the precise price setting formula publicly available through the orthodox means of public communications, the Firm's understanding is that in each of these jurisdictions, regulated prices are set and periodically updated by cost-plus style price setting formulae that take into account factors including world price benchmarks of crude oil and/or refined products. This partial regional trend towards direct price regulation stands in some contrast to trends in jurisdictions outside of the immediate region, where price controls in fuels sectors are not as common, and where fuels pricing is more commonly determined according to market competition protected by the enforcement of competition laws.

In the jurisdictions where prices are directly regulated, they are not regulated by express reference to principles of competition and market efficiency. Rather, price regulation of fuels in those jurisdictions is done by reference to consumer advocacy and

protection, and to ensuring the sustainability of the relevant industries.[32] This is an important contrast to the role of the Office in the Cayman Islands, where the governing law (the URC Act) expressly states that it is a regulation and competition law, and under which the Office has a primary mandate "to promote appropriate effective and fair competition"[33] in addition to other mandates including protecting consumer interests, and promoting innovation and facilitating economic and national development. In this way, the regulatory background to the Office's role appears to be substantially different to the position in the comparable neighboring jurisdictions. It is also noted that the regional comparable jurisdictions have not (according to the Firm's information) undertaken market definition and competition assessment processes similar to this report and the accompanying Market Definition Report – this difference appears to reflect the position that, unlike the comparable jurisdictions, the Office has an explicit primary mandate to promote market regulation and structures which promote competition. The analysis and recommendations that follow in Section 6 take into account the Office's competition mandate in this respect.

The control of critical fuels importing infrastructure is a significant aspect of fuels sector performance (see Section 6.4 of this report for more detail) and is dealt with by active (even if different) policy measures in each of the comparable jurisdictions. In Barbados, the importing berth and storage facilities are government owned through the state-owned entity BNTC, and are essentially available for use by importers (albeit through the sale and repurchase mechanism). In St Lucia, a third party owns the berth and storage facility and makes it available to importers on commercial terms and upon demand; the third party therefore does not have the incentive to exclude specific fuel importers from use of this facility. In the TCI, the berth is owned by the Government, and is in principle available for use by different fuels importers. Only in the Bahamas is the main import berth owned and operated by one of the sectoral providers, in a model similar to that in the Cayman Islands.

None of these jurisdictions has an open access legal regime for critical infrastructure in a way that exists in some other non-regional jurisdictions (see Section 6); however, each jurisdiction except for the Bahamas has adopted some other model to ensure that critical bottleneck import infrastructure is available to different competitors, rather than being controlled exclusively by one competitor.

Each of the jurisdictions considered has substantial information gathering powers, through a combination of specific legislation (such as the sweeping information gathering powers in the Bahamas Price Control Act) and information gathering powers under the jurisdictions' tax regimes that require importers to supply specific information to respective branches of government. The broad reach of these jurisdictions' information gathering powers is therefore aligned with the Office's information gathering powers. However, the Office's powers under the URC Act are more comprehensive and more precisely detailed than the powers in the comparable

[32] The Fair Trading Commission of Barbados regulates, which regulates other utilities industries including electricity supply, specifies the level of competition as one factor in setting regulated prices for those utilities, but competition is not a factor in setting regulated fuels prices.
[33] URC Act, section 6(1)(b).

jurisdictions, and are more closely aligned with the Office's mandates of regulatory oversight and to protect effective competition in the regulated markets.

6 REGULATORY OPTIONS FOR THE OFFICE

This section outlines some options that the Office has to enhance its functions of promoting competition and other related functions under the URC Act.

6.1 The overall regulatory context

As is also outlined in Section 5.2 of this Report, the Office administers a comprehensive competition and regulatory regime for sectoral providers in a regulated sector. The URC Act contains the three core substantive rules against anti-competitive conduct of a modern competition law regime. The URC Act also contains the key high-level features of a comprehensive economic regulation regime applicable to sectoral providers in defined utilities sectors. As such, the high-level legal regime available to the Office features the most important elements the Office requires to protect the competition and competitive consumer outcomes in markets in the fuel sector.

The analysis and recommendations in the section are intended to reflect the overall regulatory context.

The recommendations in this section may be implemented along with defined sunset provisions to provide for regular assessment of changing circumstances and the effectiveness of the recommendations.

6.2 Measures directed at industry concentration and competition

6.2.1 The Office's current mechanisms

The Office currently already has at its disposal a law that contains the most important substantive rules against anti-competitive conduct by enterprises in the relevant sectors. The URC Act contains a rule against anti-competitive agreements between enterprises, a rule against an abuse of a dominant position by way of anti-competitive conduct by such an enterprise, and a rule against anti-competitive mergers or acquisitions in the relevant sectors. In addition, where the Office determines that an enterprise in the relevant sectors has significant market power, the Office has at its disposal the powers to make a broad range of additional regulatory determinations regarding that enterprise's conduct, including determinations having the effect of economic regulation of enterprises within those sectors.

These core substantive competition provisions of the URC Act are broadly aligned with comparable provisions in the competition laws found in other comparable developed jurisdictions.

6.2.2 The purposes of guidelines and other secondary documents

The Firm has assessed the core substantive provisions of the URC Act and has concluded that they are currently well drafted and are suitable for their purpose of protecting competition in the relevant markets. However, in line with comparable provisions in

other jurisdictions, the core statutory provisions are quite brief, and it is not always readily possible to understand the more precise contours and application of the core provisions without further guidance.

It is for this reason that in many modern competition regimes, there are commonly other documents published by the regulators outlining in more detail how the regulator (and the courts, where applicable) will interpret and apply the statutory competition provisions. These additional documents commonly are in the form of guidelines, enforcement guidance notes, and other supplementary documents outlining more detail regarding:

- The substantive law and its proper interpretation;
- How the substantive law may apply in particular cases and scenarios;
- The regulator's procedures; and
- The regulator's policies.

The purposes of those documents are to assist all stakeholders better to understand the contours of their legal obligations under the law, and better to understand how the Office will proceed in different situations. As an example, guidelines may explain in substantial detail what categories of conduct may constitute an "abuse" of dominance and what tests the regulator or the courts will apply. As another example, guidelines may explain in detail how the regulator assesses whether a merger has the potential to harm competition in contravention of the mergers provisions and therefore may be blocked by the regulator.

For these reasons, there are a number of advantages both the Office and to stakeholders in stakeholders having such enhanced understanding, including the following:

- Stakeholders are better able to understand their obligations under the law, including what types of conduct may be in contravention of the law;
- Stakeholders are better able to avoid unintentional breaches of the law, and they and their legal advisors are able to self-assess compliance more accurately and to establish compliance programs more effectively;
- By fostering stakeholder understanding and compliance, the Office can concentrate its resources and operate more effectively;
- Where contraventions of the law occur, stakeholders are better able to determine corrective measures that cease the conduct in question, such as by making leniency applications in the case of cartel conduct;
- Courts may also benefit from an enhanced understanding of the Office's position regarding the law and its application; and
- The process of developing these documents may foster an increased focus by the Office on competition enforcement activities, which in turn would be likely to encourage increased compliance by stakeholders.

It is for these reasons that the majority of modern competition jurisdictions, if sufficiently resourced, adopt comprehensive guidelines covering the most important issues in understanding the exact shape and reach of the competition laws.

6.2.3 *The Office's options for the enhanced enforcement of competition laws*

The Firm has observed that the Office has not yet published a wide range of such guidelines and other secondary policy documents, and has assessed that the Office and the broader Cayman Islands business community would likely benefit substantially from such documents.

The Office has already published good guidelines (discussed in Section 4.4.2 of this report) on the definition of relevant markets and the assessment of significant market power.[34] These guidelines are well drafted, reflective of good competition law practice in comparable competition law jurisdictions, and are appropriate for their intended purposes under the URC Act. We therefore recommend that they be retained, subject to periodic review, and subject to the following potential amendments and expansions:

- The guidelines on the assessment of significant market power currently state that high market shares alone should not normally form a basis for a determination of significant market power. However, we observe that it is widely accepted that high market shares in the presence of appreciable barriers to entry is generally strong evidence of significant market power. Moreover, as the guidelines themselves note by way of reference to competition law regimes in mature jurisdictions, market shares above 40% are strong indications of significant market power, and market shares above 50% indicate significant market power in all but exceptional circumstances. We would add that such "exceptional circumstances" would generally be markets in which there are no appreciable barriers to entry, but that markets without appreciable barriers to entry are not often observed in practice. This means that, in practice, market shares of 40% or higher are usually very strongly indicative of significant market power, and market shares of 50% or higher are essentially conclusive of significant market power in all but the rarest cases. Moreover, clarity of market share thresholds may assist with greater legal certainty and administrative tractability, in particular in a small jurisdiction such as the Cayman Islands with tight resource constraints on both the regulator and market participants.

Accordingly, the Firm therefore recommends that the guidelines on the assessment of significant market power be retained entirely, but with one specific amendment as follows:

- State that where a sectoral supplier has a market share of 40% or higher, this would be sufficient for the Office to conclude that this supplier has significant market power in all circumstances, rebuttable only by circumstances where there are no appreciable barriers to entry to that sector.

In addition to the guidelines already in existence, the Firm understands that the Office is currently developing guidelines in certain areas including abuse of dominance, has approved rules on penalties applying to anti-competitive practices[35], and intends to prepare other such documents in due course. The Office's approach in publishing such

[34] OfReg Market Definition and Significant Market Power Guidelines.

[35] We understand that the Office approved the proposed rules pursuant to public consultation at https://www.ofreg.ky/of-2019-2-consultation-on-the-proposed-anti-competitive-practices-penalties-rules and that the Government is currently considering the proposed rules.

documents is good practice, and the Office may consider the following areas for developing and adopting guidelines and policy documents going forward:

- Guidelines relating to anti-competitive agreements, including price-setting cartels between competitors, and other agreements such as vertical exclusivity agreements;
- Guidelines relating to abuses of dominance (currently being prepared);
- Guidelines relating to merger control, including explanations of the substantive competition test, and the obligations and procedures for notification to the Office of transactions coming under the mergers and acquisitions provisions of the URC Act;
- The recommended specific amendment to the existing guidance on how the Office will determine if a sectoral provider has significant market power, and the procedures for such a determination;
- A policy for an enterprise that has been involved in a price-setting cartel to make a leniency application to the Office, and how the Office will deal with leniency applications, including any incentives (such as reduced penalties) the Office will provide for enterprises to come forward to admit their conduct and apply for leniency;
- Guidance on the Office's powers and procedures of compulsory information gathering; and
- Any other guidelines from other areas of policy, including any policy enhancements arising from recommendations in this report.

In anticipation of developing such additional documents specifically for the Cayman Islands, it may be helpful for existing comparable documents from other jurisdictions to be made applicable in the Cayman Islands. The Firm notes that, in many important respects, the URC Act aligns closely with competition laws in mature jurisdictions. This means that certain legal concepts, which have been developed in those other jurisdictions through precedent and practice, may also be interpreted in comparable ways in the Cayman Islands through the adoption of the relevant precedent and practice.

To provide an example, under the URC Act, agreements between sectoral providers are contraventions of the law if those agreements "have as their object or effect the prevention, restriction or distortion of competition in the markets and sectors"[36] covered by the URC Act. The concept of what constitutes an "object or effect" of harming competition has been extensively treated in many court decisions and instances of regulatory practice in mature jurisdictions.

The Firm recommends that such concepts be explained in detail in guidance to be published by the Office. It further recommends that the Office may refer to and incorporate (formally or otherwise) the relevant concepts from guidance published in mature jurisdictions in the interim period.[37]

[36] URC Act, section 66.

[37] This recommendation is subject to legal analysis regarding the extent to which guidelines from mature jurisdictions may be adopted under Cayman Islands law by partial or full incorporation.

6.3 Measures to improve price transparency and competition

The Firm has considered measures that may be adopted in the Cayman Islands to improve price transparency and competition at the retail levels of the fuel sector.

6.3.1 The Office's current mechanisms

The Office has already adopted such measures and they appear to work well. The Office publishes prices charged at individual retail stations (gas stations and marinas) for premium gasoline, regular gasoline, and diesel. These prices are collected by the Office by way of telephone calls, emails, and retail surveys. They are updated weekly[38], and members of the public are encouraged to contact the Office if they observe that prices actually charged by individual retail stations differ from those published by the Office.

The Firm has assessed whether these measures are effective in the next section.

6.3.2 The role of price transparency and competition

Price transparency can be described in terms of a consumer's costs in time and money for market participants to determine market prices, for transactions that will occur or have occurred. The lower these costs are, the greater is the price transparency in the market. In general, increased price transparency has benefits for consumers unless it significantly increases the risks of anti-competitive practices among sellers.

Generally, price transparency enhances competition when it favors buyers, or at the least does not favor sellers over buyers.[39] At a fundamental level a certain minimum amount of price transparency is needed for competition to exist. There would be little likelihood of sellers engaging in price competition if consumers could not reasonably compare prices. As well as potentially increasing competition, enhanced price transparency can directly benefit consumers by reducing search costs.

On the other hand, under certain conditions, particularly where price transparency favors sellers in a way that allows sellers to react more quickly to price movements than buyers can, price transparency can harm competition. Essentially, this occurs where price transparency allows sellers to exchange competitively sensitive information (in this case, prices) in a way that could increase the likelihood of conscious parallelism and anti-competitive coordination.[40] Conscious parallelism, while not illegal, can harm consumers, especially if it leads to tacit coordination of outcomes among sellers. This can happen as follows. A seller raising its price will watch to see if other sellers follow.

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[38] Except for a brief period during 2020 when reports were collected on a fortnightly basis as a temporary measure due to resource constraints. The Firm understands that the Office will revert to weekly reporting during 2021.

[39] Dennis W Carlton, and Jeffrey M Perloff, Modern Industrial Organization, second edition (New York: Harper Collins College Publishers), 1994. Chapter 14, 'Information' reviews a 1974 Canadian experiment and US experience of government collection and dissemination of grocery price data leading to falling grocery prices.

[40] For example cases, see Organisation for Economic Co-operation and Development, Price transparency. Best Practice Roundtables in Competition Policy No. 35, 11 September 2001, and Svend Albæk; Peter Møllgaard; Per B Overgaard, 'Government-assisted oligopoly coordination? A concrete case', Journal of Industrial Economics, Vol. 45, No. 4, 1997, pp. 429–43.

When sellers are speedily and precisely aware of price changes in the market the leader is taking a much smaller risk. The leader will quickly know if others have followed its lead or not. If other sellers do follow the lead they are able to do so quickly, and so the leader is 'out of the market' for more price sensitive buyers for a shorter period of time. If other sellers do not follow the lead then the leader can reverse its price rise more quickly when price transparency is higher. This reduced risk of leading price rises is exacerbated where sellers are better and more accurately informed than buyers. Such coordinated behavior is made potentially easier by increased price transparency. This is because it makes it easier for firms to detect and eventually punish firms that deviate. In turn this makes it easier for anti-competitive coordination to survive for longer.

This means that the nature of price transparency, and the potential impact on competition, needs to be carefully considered in the context of the market in which it operates. An important element in this assessment is to consider when both buyers and sellers learn about prices and the capacity of both buyers and sellers to react to price changes. As a general principle, increased price transparency is unlikely to significantly increase the risk of anti-competitive coordination unless the affected markets are already particularly susceptible to such coordination. For example, markets with low levels of concentration, large numbers of sellers and low barriers to entry are likely to be at less risk. Moreover, enhanced price transparency is more likely to benefit consumers when it is aimed at improving buyer information and options relative to seller information and options.

In the case of the Cayman Islands, the Office's initiatives relating to the publication of fuel prices appear to be working well and are likely to enhance the state of competition. The purpose and apparent effect of the initiatives are to enhance the degree of buyer information and the speed with which buyers are able to access the information about prices at different retail stations, relative to the speed with which competing retail stations are able to find out prices at competing retail stations. Ordinary retail buyers are more diffuse then retail sellers, and the relative search costs for ordinary retail buyers (relative to the values of the purchases they make) to find out about prices at different retail stations are higher compared to the relative search costs of retail sellers to find out about their competitors' prices (relative to the values of the sales they make). The Office's initiatives are designed to reduce buyers' search costs by making the search for them and presenting the results in a single, easily-accessible format on the Office's website. The Office's initiatives therefore enhance the information available to buyers relative to the information available to sellers.

The Firm therefore assesses that the Office's initiatives are likely to enhance the state of competition in the market.

6.3.3 Price transparency to enhance competition – additional options

A mechanism that enhances that transparency and relative speed with which buyers receive information (relative to sellers) would generally be likely to further enhance competition.

One option that the Office may consider to ensure that its initiatives assist buyers, and thereby enhance competition, is to require a period of "price lock in" by retailers after

the retailers have posted their prices and informed the Office. A broadly similar scheme, called "FuelWatch", has operated in the Australian state of Western Australia since 2001. Under the FuelWatch scheme, operators are required to undertake the following two core steps:

1. Inform the local regulator on a daily basis of its gasoline and diesel prices for the following day, which the regulator then posts on its website[41]; and
2. Not alter prices from those notified to the regulator for a 24 hour period from 6am of the applicable day (that is, the day after the price was provided to the regulator).

The stated purpose of this mechanism is to give fuel buyers certainty and price transparency. In addition, the mechanism is likely to have positive competition effects. As outlined in the previous section, price transparency is likely to enhance competition where it improves the relative ability of buyers to react rapidly to price changes.[42] The FuelWatch scheme, by requiring a seller lock-in of prices for a certain period, clearly improves the relative ability of buyers to reach rapidly to price changes by slowing the ability of retailers to react to their competitors' price changes. Moreover, there is empirical evidence from the Australian Competition and Consumer Commission that, on average, the FuelWatch scheme led to a decrease in pricing.[43]

The Office may wish to consider a comparable scheme, subject to consideration of the Office's powers to do so under the URC Act. In view of the fact that the Office collects and publishes retail stations' prices on a weekly basis[44], the Office has a number of options.

1. One option may be to require a price lock-in for the full 7 or 14 days (or a period otherwise determined by the Office) after prices are posted on its website. However, this would represent a long period for prices to be unchanged and unable to respond to changing market dynamics. Moreover, such a long and pre-determined period of prices being fixed may be inconsistent with the frequency and schedule of product arrivals in the Cayman Islands.
2. A second option may be for the Office to increase the frequency with which it collects and publishes prices, perhaps to a daily frequency in line with the FuelWatch scheme. However, this would likely have significant resourcing implications for the Office.
3. A third option may be for the Office to continue to collect and publish price information on a weekly basis, and then to require lock-in of published prices for the first 24 hours after publication. This option may have the advantage of shifting the price-setting dynamic in the market in favor of buyers, while avoiding either an excessively long lock-in period of prices or the significant resourcing implications for the Office of daily price dissemination.
4. A fourth option may be for the Office to collect and publish price information on a weekly basis, and then to require prices to be at the published level *or lower*

[41] https://www.fuelwatch.wa.gov.au/fuelwatch/pages/home.jspx , Accessed on 12 November 2020.

[42] As discussed earlier, by contrast, price transparency may harm competition where, under certain conditions of market concentration, it works in favor of sellers reacting more rapidly than buyers.

[43] https://www.accc.gov.au/media-release/accc-issues-details-of-further-fuelwatch-econometric-analysis , Accessed on 12 November 2020.

[44] Except for a recent period of fortnightly collection due to temporary resource constraints.

for the first 24 hours after publication. This would be a variation of the third option, with the variation that prices could not exceed the published level but could be lower. This option may enhance the prospect of a price-setting dynamic that favors buyers, by moderately increasing the incentives for sellers to engage in pricing competition, while similarly avoiding an excessively long lock-in period of prices or the significant resourcing implications of daily price dissemination.

In view of the advantages and disadvantages of the different options, the fourth option (or similar approach tailored by the Office to its resources and objectives) may be the option that best meets the Office's objectives of enhancing competitive outcomes in the fuel sector.

6.4 Other measures to improve competition – mandated access to key infrastructure

The Firm has considered the extent to which measures directed at providing mandated open access to critical pieces of infrastructure may improve competition in markets downstream from that infrastructure.

6.4.1 The Office's current mechanisms

The Office currently does not have in place any mechanisms for mandated access to key infrastructure in the fuel sector. However, in the Firm's views, and subject to legal advice on this issue, the Office may be empowered to mandate access to key infrastructure under the URC Act, including but not limited to section 45 of the URC Act.

6.4.2 Mandated access requirements to key infrastructure

In some markets, the ability for different competitors to be able to compete in that market depends on those different competitors being able to use a critical piece of infrastructure or other input controlled by another party in order to produce the goods or services that they supply to customers. Such critical infrastructure may therefore act as a "bottleneck" on the ability of competition to work effectively in those related markets. Common examples include the following:

- Where different natural gas suppliers and marketers are all reliant on being able to use a single gas pipeline to bring their gas to their customers;
- Where different electricity generators are all reliant on being able to use a single high-voltage electricity transmission grid to bring the electricity they generate to market; and
- Where farmers in a region producing for export are all reliant on being able to use a particular port to bring their products to their export markets.

These examples are all instances of a competitive market being reliant on a "bottleneck" facility for that market to remain competitive. By denying access to the services of the facility, the owner of the "bottleneck" facility could reduce or eliminate competition in the related, potentially competitive market. For this reason, such facilities are also

known as “essential facilities”. They are typically (but not only) considered to be “natural monopoly” facilities.

The competition and related laws of a number of jurisdictions feature mandated access provisions to such facilities under certain circumstances.

In the **United States**, there are legislative mandated access provisions in sector-specific laws and regulations including in the telecommunications industry (in relation to the copper “last mile” for unbundled services) and in the electricity sectors of some States and municipalities. Moreover, there is likely to be a judicially determined “essential facilities doctrine” applying to any industry under which the owner of a piece of infrastructure may be required to permit others to use the infrastructure on a non-discriminatory basis under the conditions that (1) the facility is owned by a monopolist, (2) a competitor would be unable practically or reasonably to duplicate the facility, (3) without mandated access, the owner would deny the use of the facility to a competitor, and (4) it is feasible to provide use of the facility.[45]

In **Europe**, there are similarly a range of sector-specific mandated access mechanisms in a number of European Union member states, and in the United Kingdom. There is also a judicially determined broad equivalent of the essential facilities doctrine, under which the owner of a facility may be required to permit others to use the facility if (1) the facility is “indispensable” in being able to function in a related (e.g. upstream or downstream) market, and (2) where the refusal of access to that facility would lead to the monopolization of the related market.[46]

Australia has codified the concept of an essential facilities by enshrining it in legislation. Part IIIA of the Competition and Consumer Act 2010 establishes a legal regime to facilitate third party access to certain services provided by means of significant infrastructure facilities, and is known as the National Access Regime. Stated legislative objectives of this Part IIIA access scheme include (1) to promote the economically efficient operation of, use of, and investment in critical infrastructure by which services are provided, and (2) by open access to such infrastructure, to promote effective competition in upstream and downstream markets. This access scheme is not limited to any particular industries. Facilities to which access have been granted under it include railway tracks, airports, port terminals, and sewage pipes. Access to other facilities such as gas pipelines have also been granted under sector-specific equivalent rules equivalent in operation to the general application rules in Part IIIA. Access to a facility under Part IIIA may be granted by various specific mechanisms, including agreements (“access undertakings”) between the facility owner and the regulator or a private business seeking access, arbitration, and “declaration” of the facility by the Australian competition regulator. Specifically, the competition regulator may “declare” the services provided by a facility are to be open for access (subject to an appropriate and non-discriminatory pricing scheme) under the following conditions:[47]

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[45] See *MCI Communications Corp. v. AT&T.* (708 F.2d 1081, 1132 (7th Circuit), *cert. denied*, 464 U.S. 891 (1983), and *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985). But also see *Verizon Communs., Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 124 S. Ct. 872 (2004).

[46] See Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Case C-7/97, 1998 E.C.R. I-7791, [1999] 4 C.M.L.R. 112.

[47] Competition and Consumer Act 2010, section 44CA(1).

(a) that access (or increased access) to the service, on reasonable terms and conditions, as a result of a declaration of the service would promote a material increase in competition in at least one market (whether or not in Australia), other than the market for the service;

(b) that the facility that is used (or will be used) to provide the service could meet the total foreseeable demand in the market:

(i) over the period for which the service would be declared; and

(ii) at the least cost compared to any 2 or more facilities (which could include the first-mentioned facility);

(c) that the facility is of national significance, having regard to:

(i) the size of the facility; or

(ii) the importance of the facility to constitutional trade or commerce; or

(iii) the importance of the facility to the national economy; and

(d) that access (or increased access) to the service, on reasonable terms and conditions, as a result of a declaration of the service would promote the public interest.

In summary, the key features of these access criteria are that the regulator may mandate access to the facility under the cumulative conditions that (a) access to the facility would promote competition in a different but related market, (b) the facility has natural monopoly characteristics and it would be uneconomic or otherwise unfeasible to duplicate the facility, (c) the facility is of national significance, and (d) open access to the facility would be in the public interest.

6.4.3 Access regime options for the Office

Certain markets in the fuel sector are critically reliant on key infrastructure facilities. The relevant facilities (together, the "**Import Facilities"**) include:

- The port in Grand Cayman, used to import containers, including fuels in ISO Containers (the "**Grand Cayman Port"**);
- The offshore pipeline, ship berth facility, bulk storage facilities, and other associated facilities at Jackson Point, used to import bulk fuels from tankers (the "**Jackson Point Facilities"**);
- The offshore pipeline, ship berth facility, bulk storage facilities, and other associated facilities at Creek, Cayman Brac, used to import bulk fuels from tankers (the "**Creek Facilities"**); and
- The port facilities on Cayman Brac (the "**Cayman Brac Port"**).

but may also include other facilities.

These Import Facilities are primarily required and used for the importation of the respective fuels into the Cayman Islands. As domestic refinement of fuels is currently essentially non-existent (barring very small niche quantities of certain biofuels without appreciable market impact), this means that, without the ability of domestic suppliers

to import fuels through the Import Facilities, those domestic sellers of fuels would be unable to operate without the ability to use the Import Facilities. This in turn means that the ability of the Import Facilities' owners to deny access to those facilities gives them the power to prevent effective competition in essentially all fuel markets in the fuel sector.

The Import Facilities therefore have a highly significant potential impact on competition, and the ability for competition to exist, in all fuel sector markets downstream from those facilities. In particular, suppliers who are able to import gasoline and diesel fuels in bulk quantities (that is, through an offshore pipeline from tankers) currently have a substantial cost advantage, and therefore competitive advantage over any other market participant.

Some suppliers may import fuels in ISO Containers through the Grand Cayman Port, and market information indicates that access to the this port as determined by the Port Authority of the Cayman Islands is generally open to all importers on an equivalent basis without anti-competitive restrictions. However, reliance on ISO Containers creates an upper bound on the volumes of fuels that those suppliers can realistically import and therefore on the market volumes they can supply, and at the same time creates a cost disadvantage for those suppliers reliant on ISO Containers.

In contrast, access to the Jackson Point Facilities for the importation of larger, bulk quantities of fuels is currently realistically limited to the two largest fuels suppliers, Rubis and SOL. According to market information, both of these suppliers use the facilities (including the pipeline and the berth facilities) under an agreement between them. The limitation of access to the Jackson Point Facilities likely has significant negative competition implications. The inability of other actual or potential competitors to access the Jackson Point Facilities constitutes a significant barrier to entry for any other competitor, as no other competitor (actual or potential) is able to import fuels in bulk quantities or at the low unit costs (relative to the higher unit costs of importation via ISO Containers) of importing fuels in bulk via the off-shore pipeline. This in turn means that the downstream markets for the respective fuels are inherently limited to two large suppliers, without realistic prospect of competitive entry on a comparable scale. This in turn likely leads to a softening of competition in those markets as a result of the "bottleneck" to competition, with higher prices likely resulting for consumers.

Similarly, access to the Creek Facilities is currently realistically limited to Rubis. The limitation of access to the Creek Facilities likely has significant competition implications in the markets in the Sister Islands, as the inability of other actual or potential competitors to access the Creek Facilities constitutes a significant barrier to entry for any other competitor, which in turn likely leads to a softening of competition in those markets as a result of the "bottleneck" to competition, with higher prices likely resulting for consumers.

The Firm's assessment is that unlocking the use of such infrastructure to potential entrants and existing competitors may significantly enhance the degree of competition in downstream markets in the fuel sector. The Firm therefore recommends that the Office may explore the introduction of an access regime to mandate access to critical infrastructure that creates a "bottleneck" in competition in related markets, similarly to the way such regimes operate in other jurisdictions (see Section 6.4.2).

The Office may already have the legal power under section 45 of the URC Act to introduce such a scheme. If this is not the case, the Office may consider a statutory model of a similar nature to the Australian statutory essential facilities regime outlined in Section 6.4.2 of this report.

A general open access regime would likely include the following as cumulative criteria for the provision of open access:

A. Access to the facility would promote competition in a different but related (e.g. upstream or downstream) market ("**Criterion A"**);
B. The facility could not be duplicated, or would not realistically be duplicated ("**Criterion B"**);
C. It would be technically feasible for the facility to be used by another ("**Criterion C**");
D. Access to the facility can be granted on reasonable and non-discriminatory terms ("**Criterion D"**);
E. The facility is of national significance ("**Criterion E"**); and
F. Open access to the facility would be in the public interest ("**Criterion F"**).

These proposed criteria are cumulative, meaning that they must all apply for a facility to be opened for mandated access to third parties. If one or more criteria are not satisfied, the facility could not be opened for mandated access to third parties under such a proposed regime. These criteria are strict and would only be satisfied under restricted circumstances, noting in particular that they require that access to the facility would promote competition in a related (e.g. downstream) market, and that the facility could not be duplicated (e.g. if it is a natural monopoly or is otherwise not replicable).

A decision would need to made whether the regime is to be administered by the courts, by the Office, or by another administrative body. The discussion immediately following is based on an assumption that the Office would administer the regime.

Decisions to grant mandated access under such a regime would take place upon application by a market participant seeking access to use the facility (an "access seeker"). It is important to note that the regime would only come into play if the access seeker requests use of the facilities (e.g. to import fuels) but is denied by the owner of the relevant facilities – if the facilities owner agrees to the request to provide the services on negotiated commercial terms, then the regime would not come into operation. For similar reasons, the regime would not require that the Office declare the facility open for mandated access of its own initiative; the Office would receive applications from access seekers, and would assess the application as against the pre-determined access criteria (such as the proposed Criteria A to F above).

Procedurally, once established under the law, the open access regime may broadly consist of the following steps in relation to specific cases:

1. A company or person wanting to use a particular facility makes an application to the administrator of the regime that the facility be declared for mandated open access.
2. The administrator makes a reasoned decision based on applying the regime's criteria to the facts of the application.

3. If the facility is declared for mandated open access, the facility owner and the access seekers negotiate for the terms and conditions of access to the facility.
4. In case the facility owner and the access seekers cannot agree on the terms and conditions of access, reasonable terms and conditions are determined by an external arbitrator or the administrator of the regime (e.g. the Office).

For illustrative purposes of how such a regime may operate in the Cayman Islands, the Import Facilities are considered here in a preliminary manner. However, it is stressed that a reasoned decision in relation to any facility would have to be made on the basis of the full evidence contained in an access seeker's application, and against the criteria specified in the final event in an operational regime, and that these preliminary indications are therefore for illustrative purposes only.

- The Jackson Point Facilities, or at least certain components of the Jackson Point Facilities, appear to be a strong candidate to meet all of these criteria. Access to the Jackson Point Facilities would likely have the potential to materially enhance competition in fuels retail market by making it viable for new competitor to enter the market (or for an existing competitor to expand into bulk import volumes) – thereby satisfying Criterion A. The Jackson Point Facilities could not likely be duplicated as there is no other geographic location on Grand Cayman that could accommodate a second ship berth, pipeline, and storage tank complex, as there is no other location in which a large tanker can berth offshore and there is also sufficient onshore space on which to construct adequate bulk storage – thereby satisfying Criterion B. Certain elements of the Jackson Point Facilities are already shared in use by two operators, there are sufficient bulk storage tanks that may be cleaned between users that it may be feasible for the facility to be shared with other operators, and Home Gas already uses the ship berth to onshore its propane gas bulk deliveries – thereby likely satisfying Criterion C. Once access is agreed in principle, the terms of access can generally be agreed, or if necessary, imposed by the Office if an agreement cannot be reached – thereby satisfying Criterion D. The Jackson Point Facilities appear to be of national significance as they are the only means for bulk fuels to be imported into the Cayman Islands – thereby satisfying Criterion E. For the same reasons, and because it would enhance competition and thereby likely reduce consumer prices, open access to the Jackson Point Facilities appears to be in the national interest – thereby satisfying Criterion F. As a result of potentially meeting all these criteria, the Jackson Point Facilities may be a suitable candidate for the granting of open access under an access regime. This would be determined under a case-specific determination (by the Office) if such a regime were established in the Cayman Islands.
- Similarly, the Creek Facilities (or at least certain components of them) appear to be a strong candidate to meet all of these criteria. Access to the Creek Facilities would likely have the potential to materially enhance competition in fuels retail market by making it viable for new competitor to enter the market in the Sister Islands – thereby satisfying Criterion A. The Creek Facilities could not likely be duplicated as there is no other geographic location in the Sister Islands that could accommodate the required infrastructure – thereby satisfying Criterion B. As certain elements of the Jackson Point Facilities are already shared in use by

different operators (see previous paragraph), this suggest that it may be feasible for the Creek Facilities to be similary shared with other operators – thereby likely satisfying Criterion C. Once access is agreed in principle, the terms of access can generally be agreed, or if necessary, imposed by the Office if an agreement cannot be reached – thereby satisfying Criterion D. The Creek Facilities appear to be of national significance as they are the only means for certain fuels to be imported into the Sister Islands – thereby satisfying Criterion E. For the same reasons, and because it would enhance competition and thereby likely reduce consumer prices, open access to the Creek Facilities appears to be in the national interest – thereby satisfying Criterion F. As a result of potentially meeting all these criteria, the Creek Facilities may be a suitable candidate for the granting of open access under an access regime. This would be determined under a case-specific determination (by the Office) if such a regime were established in the Cayman Islands.

- The Grand Cayman Port and the Cayman Brac Port are also critically important fuel import infrastructure. The Grand Cayman Port and the Cayman Brac Port would likely meet the majority of the criteria A to F (suggested above). However, the Firm's information is that both the Grand Cayman Port and the Cayman Brac Port currently (and historically) already permit use of their port facilities to importers without undue restrictions and on reasonable, non-discriminatory terms. This means that granting mandated access to the Grand Cayman Port and the Cayman Brac Port may not give rise to material changes in the competitive landscape, so that Criterion A (requiring that access would promote competition) may not be satisfied. However, should the Grand Cayman Port in the future deny use of its facilities to importers in a way that has anti-competitive consequences, then this assessment would likely change, and a mandated access regime may become relevant to dealing with such (currently hypothetical) difficulties.

The Firm recommends that the Office explore options for the introduction of an open access regime that may cover critical infrastructure such as the Import Facilities and other critical infrastructure that has a material "bottleneck" effect on competition in the relevant markets.

It is important to note that the creation of a statutory or regulatory access regime would not inherently mean that any one particular facility would be necessarily declared to be open for access under that regime. A regime would establish the criteria under which a particular facility might be declared to be open for access, and the procedure that which an access seeker would have to follow to seek a declaration. The decision to declare a specific facility as being open for access would follow a fact-specific determination of the facts of each specific application.

6.5 Measures directed at price setting

The Firm has considered measures that may be adopted in the Cayman Islands in relation to directly setting or otherwise controlling prices in the fuel sector, either at the wholesale or at the retail levels of the fuel sector.

6.5.1 *The Office's current mechanisms*

The Office currently does not have in place any direct price control mechanisms.

6.5.2 *Price controls and market outcomes*

A number of jurisdictions regulate the prices of fuels directly. Such price regulation may take place by: (1) directly regulating the retail selling price of fuels, such as setting a maximum price; (2) setting a maximum margin that retailers are permitted to add to wholesale fuel prices; (3) setting a retail price according to a formula derived from the import parity price for the respective fuel; and (4) other comparable methods.

The jurisdictions in the Caribbean region that directly regulate fuel prices include: Barbados and Belize, which determine retail prices based on the import parity price of fuels. The Barbados regulator periodically publishes permitted retail prices for diesel, gasoline, and kerosene[48]. Panama directly regulates fuel prices by adopting a wholesale price formula based on the import parity price of fuels of international refined prices. Jamaica posts wholesale prices for fuel but does not legally control wholesale or retail prices.

Larger markets have at various times also introduced price controls, including the USA, which set maximum prices for gasoline from 1973 to 1979.

A market mechanism without any form of price control delivers outcomes based on the interaction of supply and demand (that is, the interaction of buyers and sellers in the market). As a general principle, it is widely accepted that when markets function well, this market mechanism delivers the market outcomes that most closely reflects both the desires and preferences of consumers in that market (the demand side) and the costs to suppliers of society's resources (including raw materials, human capital and labour, and physical and financial capital) in supplying the different products at issue. The outcomes from market determination of market prices in most cases deliver the greatest economic welfare to society, because they ensure that society's scarce resources at directed to the best uses of those scarce resources, taking into account consumers' preferences.

By contrast, interference with the market mechanism for determining market prices can often have negative impact on the economic outcomes for society, by resulting in a distortion of economic decision making and direction of society's resources to uses that don't align as well with consumers' preferences for them. One consequence of interference with market mechanisms through price ceilings may be shortages: if consumers can obtain an item, they can obtain it at the regulated maximum price, but they may find it more difficult to obtain the item, resulting in shortages. One of the principle reasons why price controls are generally less favored in the current environment (in relation to fuels prices as well as prices in the economy more widely) because of the experience of such shortages (as seen in the "gas lines" in the United States in the 1970s, for example).

[48] Ministry of Energy, Small Business and Entrepreneurship of Barbados. See for instance https://commerce.gov.bb/computing-of-prices-of-items-subject-to-price-control-regulations/

However, there are two main circumstances in which the market mechanism may itself result in distorted outcomes, meaning that interference with the market outcome may in some circumstances result in improved social outcomes. The first case is where there are so-called "externalities" in consumption or production, meaning that benefits or costs accrue to parties not directly involved in the relevant market transaction: such externalities include pollution in production and the consumption of education. The second case, which is relevant for this market study, is where there is appreciable market power in a market: market power can distort the market outcomes away from competitive market outcomes and thereby away from the socially optimal outcomes. These situations are well-known as situations where, in theory, and sometimes in practice, appropriate corrective measures through government action may improve overall social outcomes.

However, it is equally well-known that corrective measures may bring additional unintended negative consequences, and that a corrective measure is generally only justifiable from a social policy perspective if its corrective value outweighs the costs of any additional unintended consequences that the corrective measure brings about. For this reason, it is not always the case that a beneficial corrective measure exists, even where there is a market distortion due to market power or other issue, and as a result governments are generally well advised to consider the costs of corrective measures in addition to the benefits of any corrective measures before introducing any such corrective measure.

In the case of fuels markets, there may be distortions to the market by way of the presence of market power at one or more stages of the supply chain. Such market power may result in prices being higher relative to prices in a more competitive market outcome. A potential advantage of price controls in such a situation may be to bring outcomes closer to prices that would prevail in a more competitive market: the Firm understands that this is a core rationale of price controls operating in other jurisdictions in the Caribbean region.

However, and in contrast, price controls bring with them other, significant disadvantages:

- First, the market mechanism, even if it works imperfectly, is essentially completely disabled under price controls. This means that the advantages of a price mechanism, even if they work imperfectly, are lost altogether. These advantages include the well-understood principle that market price setting acts as a "discovery" process that enables suppliers to respond to changing consumer demand, preferences, and behavior, in addition to being able to respond effectively to changing supply and broader market conditions. These advantages can remain significant even in situations where the market mechanism only operates imperfectly.
- Second, price controls are complex to administer. Price controls and regulation in many jurisdictions are limited to large, "natural monopoly" type industries that are characterized by large physical networks, such as sections of the electricity and other comparable infrastructure industries. The price regulation mechanisms in those price control systems are generally highly complex, requiring large amounts of complex cost and price data, and needing to be

administered by significant human resources at the level of the regulatory authority.

- Price controls in the fuel sector are potentially particularly complex and may require ongoing monitoring and price setting on a near-continuous basis. This is because the most important input prices, namely the international market prices of crude oil and the market import prices of refined fuels, change regularly and on a similarly near-continuous basis. In this way, price regulation in the fuel sector is potentially quite different to price regulation in regulated utilities such as electricity transmission, water services, and similar. In those regulated utilities, price regulation and setting typically takes place once every few years (commonly, once every five years) by way of a price review process once every regulatory period. In those utilities, such a process is effective because long-term capital costs form a very high proportion of the cost structure, meaning that the bulk of the costs can typically be determined with a high degree of certainty for long periods in advance, and cost-based prices can therefore be set with similar certainty over long periods in advance. By contrast, long-term price setting would not be as effective in a sector such as the fuel sector where the bulk of the costs can change considerably in short periods of time. This would therefore require that price regulation would need to be carried out, and prices adjusted, much more frequently over time, with commensurate complexity and human resources implications.

For these reasons, any decision to introduce price controls needs to be grounded on rigorous foundations and to take into account the disadvantages as well as the advantages of such a policy.

6.5.3 Price control options for the Office

The Office may consider price control mechanisms including the following:

- Directly regulating the retail price of fuels, such as by setting a maximum price;
- Setting a maximum margin that retailers are permitted to add to wholesale fuel prices;
- Setting a retail price according to a formula derived from the import parity price for the respective fuel; or
- Other comparable methods.

However, given the disadvantages of price control mechanisms, the Firm recommends that other regulatory options are generally preferable to price control mechanisms where other effective options are available. The principal reasons why price control mechanisms may not be the preferred option for the Office include:

- Where competition works effectively, or can be made to work effectively through other mechanisms, a competition-based policy solution is generally preferred rather than price controls. Price controls are generally the preferable option only in circumstances where competition cannot be made to work effectively. In the Cayman Islands, competition in the fuel sector can be made to work more effectively through the introduction of other measures, as

recommended in other parts of this Market Assessment Report, including Sections 6.2, 6.3, 6.4, and 6.6.

- As outlined above, price controls in the fuel sector would require ongoing monitoring and price setting on a near-continuous basis, with similar complexity to other regulated sectors, but with far more frequent price evaluation and price adjustment required. This is because the most important input prices, namely the international market prices of crude oil and the market import prices of refined fuels, change frequently and near-continuously. Price regulation in the fuel sector would therefore require much more intensive and ongoing work than in other sectors that are commonly subject to a form of price regulation.
- The Office is currently structured to discharge its mandate, however will require adequate resources to effectively deliver on its mandate. The Office should take into consideration that in other similar jurisdictions where price controls are imposed, this requires substantial budgets, human resources, and technological resources for proper implementation. In a small economy and labour market such as the Cayman Islands, this would currently not likely be advisable, and the Firm would generally not recommend such an approach.
- In parallel with the burden on the Office, fuel sector price controls would likely impose a high and ongoing compliance burden on companies subject to the price controls. This compliance burden may be particularly appreciable in view of the relatively small size of many of the suppliers in the fuel sector. The Firm is aware that, while there are several large suppliers in the relevant markets, there are also a large number of small suppliers who may not currently have the resources to meet such an administrative burden. There therefore appears to be an appreciable risk that, even if price controls were effective from other perspectives, the benefits of them may be outweighed by the increased compliance burden on suppliers.
- Moreover, meeting the increased compliance burden would likely impose additional costs on suppliers. As in most markets, such increased costs would ultimately likely flow through to consumers in the form of higher prices.

Should the Office wish to explore price control options, the Office may note that in the gasoline and diesel markets, the potential competition issues are more likely to be occurring at the wholesale/bulk level (where markets are highly concentrated, and where the barriers to entry are higher) than at the retail level (where markets are much less concentrated, and where barriers to entry are also somewhat lower). This suggests that, should price controls be introduced, price controls at the wholesale/bulk levels would likely be more effective in controlling prices for final consumers than price controls at the retail level.

6.6 Other measures to improve competition – reduction of barriers to entry

6.6.1 The Office's current mechanisms

The Office does not have an explicit mandate under the URC Act to deal with a reduction of barriers to entry, and nor does it have in place any specific mechanisms for bringing about reductions in barriers to entry. However, the URC Act recognizes the importance

of barriers to entry as part of the Office's function in carrying out aspects of its regulatory remit.[49] More broadly, the Office's principal functions expressly address that the Office is charged with "promoting appropriate effective and fair competition" in the relevant sectors and markets[50], with protecting "the short and long term interests of consumers" in the covered sectors and markets[51], and with "promot[ing] innovation and facilitate[ing] economic and national development"[52]. All of those objectives are promoted by markets where competition works effectively and where barriers to entry are low, for reasons outlined in the following Section 6.6.2.

Moreover, in the Firm's assessment, the URC Act gives the Office powers in a number of different ways that could be leveraged to achieve effective reductions in barriers to entry.

6.6.2 The relevance of barriers to entry to the degree of competition

Barriers to market entry by new competitors (or barriers to market expansion by existing competitors) are generally accepted as being important factors in determining the extent and effectiveness of market competition and competitive outcomes. As is outlined in more detail in Section 4.3.3 of this report, barriers to entry may include legal and regulatory barriers, structural barriers including costs of entry, and strategic behavior by market incumbents that deters potential entry. As is also outlined in Section 4.3.3, low barriers to entry can enhance competitive outcomes in markets even if there is no actual competitive entry; the threat of competitive entry can be sufficient to provide the competitive discipline for market incumbents to adopt competitive outcomes, if higher pricing (or similar) by them would trigger rapid and substantial competitive entry.

6.6.3 Regulatory options for the Office to reduce barriers to entry and expansion

The Office has decision-making and other powers over a range of decisions that may influence the height of barriers to entry, and thereby the degree of competition and consumer outcomes, in the relevant sectors.

An important example is the Office's function to "issue, suspend, vary or revoke licences, permits and exemptions" in the relevant sectors.[53] Licensing conditions and processes can serve as a barrier to entry to industries, with the result that the processes and conditions under which licences, permits and exemptions are awarded (or refused) can have a material impact on the degree of competition and consumer outcomes in those sectors.

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[49] For instance, barriers to entry are expressly recognized as relevant to competition assessment in mergers assessment under section 50 of the URC Act. The existence and magnitude of barriers to entry will generally also be important in the Office's determination of whether a sectoral provider has significant market power under section 44 of the URC Act.

[50] URC Act, section 6(1)(b).

[51] URC Act, section 6(1)(c)

[52] URC Act, section 6(1)(d)

[53] URC Act, section 6(2)(n)

The Firm recognizes that the Office's conditions and procedures for the award of licences, permits and exemptions take into account a range of wider policy considerations, including as an example public safety considerations. We do not suggest in any way that the Office alter its consideration of that wider set of policy and public interest considerations in its decision-making processes regarding licences and other regulatory instruments. The Firm recognizes that the Office is strongly aware of the potential impact of its regulatory decision-making on outcomes in the relevant markets. However, we also recognize that the ability of the Office to take into account its impact on markets as a permissible factor in regulatory decision-making may strengthen the Office's ability to take these factors into account, while at the same time assisting to protect the Office against judicial review when it does take competition factors into account in making its decisions. As a result, it is recommended that the Office consider introducing competition considerations into its decision-making processes regarding licences etc. This may take the form of the addition of the following or similar considerations to that decision-making process: "Will the decision to grant or refuse this licence have an impact on competitive outcomes by raising or lowering barriers to entry in the affected market", or a comparable mechanism with a comparable effect.[54]

6.7 Gathering of information from stakeholders in the fuel sector

The Firm has considered measures and approaches to regulatory accounting and reports, reporting templates, and more generally information gathering that may enhance the productivity with which the Office manages its information requirements from sectoral providers, in particular in the case of fuel price monitoring.

6.7.1 The Office's current mechanisms

Where a sectoral provider has been determined to have significant market power, the Office may impose certain conditions on that sectoral provider, including among other conditions: imposing price controls and requiring a cost-recovery orientation of prices; requiring the use of cost accounting systems of a type that facilitates price controls and cost-recovery orientation of prices; and requiring the submission of regulatory accounts or financial statements separating out the key business activities of the sectoral provider.[55]

In addition, the Office collects and publishes prices charged at individual retail stations for gasoline and diesel fuels on a weekly basis, under a mechanism outlined and discussed in Section 6.3 of this report.

[54] The United Kingdom government adopted similar procedures in relation to town planning decisions. The UK Competition Commission's inquiry into the groceries market in April 2008 recommended (among other recommendations) that a "competition test" be introduced into planning policy, with a particular view to town planning decisions regarding proposed supermarket sites being used as a vehicle to encouraging competition from smaller and new entrant supermarkets. A modified version of this proposal was subsequently adopted in the UK Government's Planning Policy Statement 6 in relation to town planning policy.

[55] URC Act, section 45.

More broadly, the Office has a wide set of information gathering powers as described in Section 5.3 of this report. These information gathering powers support the Office's broader mandate, including in relation to enhancing competitive markets, and it is therefore important that these powers operate effectively for the Office.

6.7.2 The purposes of regulatory accounts and reports

The purpose of regulatory accounts and reports is for regulated entities to provide the information to the regulator that it requires to fulfil its mandate. This includes providing relevant financial information on basis of the record-keeping and accounting rules, and in the format, which the regulator requires.

For instance, a regulator may impose price controls on regulated entities, under which it requires the regulated entities to set prices according to a regulated cost-recovery orientation.[56] Such a cost-based approach to price regulation inherently and necessarily requires the recording of those costs relevant specifically to the regulated prices, in a manner consistent between different operators, across time, and according to consistent regulatory accounting policies. Specifically, the regulator would need to know reliably what the product-specific costs for the price-regulated products were. However, this raises accounting cost allocation issues. A price-regulated entity commonly engages in both regulated activities and unregulated activities; in the fuel sector, this would be the case where a retail station must charge regulated prices in respect of the gasoline and diesel (or other) that it sells, but is free to charge any prices on an unregulated basis for all other products and services (such as convenience store products from the retail station's c-store) that it sells. In selling both regulated and unregulated products, the retail station would incur costs attributable to each category of product, and common costs across all categories of their products. The common costs would have to be attributed (allocated) among the different activities. In an environment where some (but not all) products are price-regulated based on their costs, this may create strong incentives for the sectoral providers to skew their accounting costs allocations so as to allocate all the common costs to the regulated activities: by increasing the recorded costs of the activities, under most costs-based regulatory formulas the regulated entity can increase the regulated price it is permitted to charge. Regulatory record keeping rules therefore generally need to be designed with a high degree of specificity regarding the required underlying accounting policies such as the cost allocation policy.

6.7.3 The Office's options for requirements regarding information gathering

The Office's current compulsory information gathering powers under the URC Act are wide and permit the Office to seek most or all types of information that it requires to discharge its function. Moreover, the Office may enforce these powers by seeking penalties in cases of non-compliance. These powers are therefore well suited to the Office's mandate.

[56] The Office is empowered under section 45 of the URC Act to impose price controls and cost-recovery orientation of prices on sectoral providers with significant market power.

There are understandable practical difficulties with a compulsory information gathering process. The Firm made several requests for information to suppliers in the fuel sector and found that responses were sometimes sparse in detail, and that suppliers sometimes sought long extensions for reasons of their capacity contraints. From the supplier perspective, this may be understandable, particularly in the case of small suppliers, as is also discussed in relation to compliance burden in Section 6.5.3 of this report. However, it also illustrates certain dilemmas in the regulation of the fuel sector in the Cayman Islands. To a large extent, any regulatory mechanism can work most effectively where it operates with some degree of cooperation between the stakeholders in regulated sectors and the regulator, with each of these stakeholders understanding the other's function in the market. This may speak in favor of a streamlined and regularized information gathering process and against the use of penalty mechanisms for enforcement in all except egregious cases of non-compliance. The Office acknowledges the challenges and the potential lack of cooperation in the information gathering process, and that it will need to take these challenges into consideration when setting up any further regulatory regime.

The first best solution to this dilemma is generally full voluntary compliance by regulated suppliers without the need for enforcement by way of penalties. To enhance voluntary compliance, the Office might therefore consider:

- Expanded outreach to, and education of, regulated entities regarding the Office's functions under the URC Act, the obligation on parties to cooperate with the Office, and the Office's powers and penalty options in cases of non-compliance. Moreover, it would be beneficial if parties fully understand that full compliance is more likely to be satisfied by complete and meaningful responses to questions, rather than by bare minimalist responses.
- The Office may review where its processes and functions are likely to involve regular requests for information, and to streamline these to the greatest extent possible. This may be achieved by enhanced use of templates and other similar regularization processes. Such streamlining may assist stakeholders to appreciate that they should considers such requests for information as a regular, uncontroversial part of being active in a regulated market, and to comply fully and in a timely manner as a matter of course. The Firm understands that the Office currently has such regular and streamlined information gathering processes, for instance in connection with the weekly gathering of fuel prices for publication on the Office's website, which is effective and may be expanded upon.
- Liaising with stakeholders to ensure that such regular information gathering processes, including the questions asked, are designed in a manner that achieves the Office's purposes while avoiding excessive and unreasonable compliance burdens on suppliers. This may involve an interactive, iterative process of discussion with the stakeholders regarding both the contents and the form of regular information requests. Such interactions would in turn place an onus on the stakeholders to work reasonably and cooperatively with the Office, and the Office's willingness to use its compulsion and penalties powers if such cooperation is not forthcoming.
- The use of penalties in egregious cases of non-compliance.

As regards accounting record-keeping that may be required for a cost-based price regulatory regime, the Firm notes its observation during the course of this market assessment that the stakeholders who provided information do not currently record accounting information in the way that would be required for the purposes of regulatory accounts. For instance, the retail stations do not currently separate their records (regarding revenues, costs, or other items) between their fuels and their non-fuels (e.g. c-store) activities – they record information in the ordinary way as is common for small businesses, which is expected and standard practice for non-regulated small businesses, but which they would have to change if cost-orientated pricing regulation were introduced. The Office would need to develop a specific price-setting formula based on relevant costs, and would then need to develop a highly specific set of regulatory record-keeping rules for regulated sectoral providers. Those providers would then need to keep regulatory accounts according to these regulatory record-keeping rules, in addition to keeping their ordinary accounts for all other purposes. It would be expected that the Office would need to assist some stakeholders, in particular smaller operators, with establishing the necessary mechanisms and processes to comply with these regulatory record-keeping rules and obligations. Any precise templates would be designed after the precise information to be obtained is determined on the basis of the exact cost-based price setting formula to be adopted.

7 APPENDIX 1: TABLE SUMMARY OF STATE OF COMPETITION IN THE FUEL SECTOR

A table summary of the state of competition in the fuel sector is attached as an appendix.

Table Showing Summary of the State of Competition in the Fuels Sector

Products	Importation	Wholesale				Retail			
	World Wide	Cayman Islands	Grand Cayman	Cayman Brac	Little Cayman	Cayman Islands	Grand Cayman	Cayman Brac	Little Cayman
Gasoline and gasoline-ethanol blends up to 10%	Price takers	-	Highly concentrated and not strongly competitive. Two players and both players have SMP[1].	Highly concentrated and not strongly competitive. One player and thatnplayer has SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.	-	Moderately concentrated and moderately competitive. Several players and no player has SMP.	Highly concentrated and not strongly competitive. Only two players and both players have SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.
Diesel and diesel-biodiesel blends up to 20%	Price takers[2]	-	Highly concentrated and not strongly competitive. Only two players and both players have SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.	-	Moderately concentrated and moderately competitive. Several players and no player has SMP.	Highly concentrated and not strongly competitive. Only two players and both players have SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.
Jet fuel and kerosene	Price takers[3]	Highly concentrated and not strongly competitive. Two players have SMP	-	-	-	Highly concentrated and not strongly competitive. Two players have SMP	-	-	-
Aviation gas	Price takers[4]	Highly concentrated and not strongly competitive. One players has SMP.	-	-	-	Highly concentrated and not strongly competitive. One players has SMP.	-	-	-
Propane (LPG)	Price takers	-	Highly concentrated and modestly but not strongly competitive. Two players and one player has SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.	-	Highly concentrated and modestly but not strongly competitive. Two players and one player has SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.	Highly concentrated and not strongly competitive. One player and that player has SMP.
Acetylene	Price takers	-	Highly concentrated and not strongly competitive. Only one player and this player has SMP.	Highly concentrated and not strongly competitive. Only one player and this player has SMP.	Highly concentrated and not strongly competitive. Only one player and this player has SMP.	-	Highly concentrated and not strongly competitive. Only one player and this player has SMP.	Highly concentrated and not strongly competitive. Only one player and this player has SMP.	Highly concentrated and not strongly competitive. Only one player and this player has SMP.
Gasoline-enthanol blends greater than 10%	Potential future markets in the Cayman Islands with no known participants or commercial activity in the market, therefore not possible to be assessed.								
Diesel-biodiesel blends greater than 20%									
Natural gas (inluding LNG and CNG)									
Butanes									
Hydrogen (potential future market)									
Methanol (potential future market)									

Notes:
1. Significant Market Power ("SMP")
2. Small quantities of Biodiesel produced on Grand Cayman that is used as a by-product for Diesel Bio-diesel Blends.
3. Whilst jet fuel and kerosene is in Cayman Islands wide market, the players are also competing in a world wide market.
4. Whilst aviation gas is in Cayman Islands wide market, the players are also competing in a world wide market.

8 APPENDIX 2: THE MARKET DEFINITION REPORT

The Market Definition Report is attached as an appendix.

Market Definition Report

A Consultation Report prepared for the Cayman Islands Fuel Sector – Fuel Market Definition and Economic & Regulatory Assessment Study

Finalized 29 June 2021

Economics Partners Limited
Authorised by Dr. Derek Ritzmann
derek@economics-partners.com
as adopted by the Chief Fuels Inspector and Director, Fuels Market

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1 INTRODUCTION AND SUMMARY

1.1 Background

The Utility Regulation and Competition Office ("**OfReg**" or the "**Office**") is the independent multi sector regulator with responsibility for the key utility providers including the fuel sector in the Cayman Islands (the "**Fuel Sector**"). The Utility Regulation and Competition Law (as revised) (the "**URC Law**") is the principal legislation governing the Office's mandate in this respect in the Cayman Islands. Alongside the URC Law, the sector-specific legislation governing the Fuel Sector are the Dangerous Substances Law (2017 Revision) (the "**DS Law**") and its supporting Regulations ("**DS Regulations**"), and the Fuel Market Regulation Law, 2017 (the "**FMR Law**").

1.2 The Market Study

The Office is in the process of establishing a comprehensive regime to effectively monitor and regulate the Fuel Sector, in order to achieve the Office's mandate of assuring competition, transparency, efficiency and innovation in the markets, along with its continuing function of safety and compliance across the sector. As a part of the establishment of the Office's regulatory role in the Fuel Sector, the Office is undertaking a comprehensive assessment of the Fuel Sector entitled the *Cayman Islands Fuel Sector – Fuel Market Definition and Economic & Regulatory Assessment Study (the "**Market Study**")*. The objective of the Market Study is to define the relevant markets within the Fuel Sector, and to assess the extent and effectiveness of competition within these markets, in order to provide guidance and a foundation for the regulatory mechanisms that will be required, for the Office to achieve its mandate under the various laws. The Market Study intends to reflect all the types and grades of fuels currently offered in the Cayman Islands, and consideration is given to fuels which are under review, and may be introduced to the Island's fuel mix in the near future.

Economics Partners Limited ("**Economics Partners**" or the "**Firm**") is a firm of economic consultants specialising in competition and regulatory economics and market assessments. The Firm was appointed in September 2019 pursuant to an open tender to conduct the Market Study on behalf of and in cooperation with the Office. The Market Study will consist of two principal elements:

1. An assessment of and report on the market definitions for competition assessment purposes for the various fuels markets in the Fuel Sector which are to be assessed during the course of the Market Study (the "**Market Definition Report**"); and
2. An assessment of the effectiveness of competition of all fuels markets defined in the Market Definition Report, and any recommendations regarding potential regulatory models, intervention strategies, recommended market rules, and regulatory determinations to be considered and implemented in the relevant markets in the Fuel Sector (the "**Market Assessment Report**").

After its appointment, the Firm has undertaken a comprehensive process of information gathering pertaining to the different potential markets in the Fuel Sector in

the Cayman Islands, and has analysed this information using commonly accepted techniques and approaches of market definition for competition assessment. The present report is the Market Definition Report and it is the product of the Firm's analysis.

2 SUMMARY OF FINDINGS

This Market Definition Report analyses the market definitions applying to different fuels on sale and potentially on sale in the Cayman Islands. It uses the orthodox approach to market definition, comprised of consideration of different relevant factors including quantitative measurements where possible, and relevant qualitative factors to conclude as follows:

On a functional Level, the markets for all relevant fuels are segmented into separate markets according to the relevant level of the supply chain, consisting of:

1. The importation of the relevant fuel;
2. The wholesale and bulk sale and marketing of the relevant fuel; and
3. The retail sale and marketing of the relevant fuel.

On a product dimension, the markets are delineated as follows:

1. Gasoline, and all gasoline-ethanol blends with 10% or less of ethanol.
2. Gasoline-ethanol blends with more than 10% of ethanol, including pure ethanol.
3. Petroleum-derived diesel, and all diesel-biodiesel with 20% or less of biodiesel.
4. Diesel-biodiesel blends with more than 20% biodiesel, including pure biodiesel.
5. Jet fuel and kerosene.
6. Propane (LPG).
7. Natural gas (including LNG and CNG).
8. Aviation gas.
9. Butanes.
10. Acetylene.
11. Hydrogen (potential future market).
12. Methanol (potential future market).

On a geographic dimension, the markets are delineated as follows:

1. World-wide for the market for imported fuels.
2. Cayman Islands-wide for the retail and wholesale markets for the aviation fuels (jet fuel and kerosene, and aviation gas).
3. Grand Cayman for all other fuels at the wholesale and retails supply chain levels.
4. Cayman Brac for all other fuels at the wholesale and retails supply chain levels.
5. Little Cayman for all other fuels at the wholesale and retails supply chain levels.

Each of these market definitions is based on current information, including available information on consumer behaviour, regulatory standards, and other information. Should relevant factors change in a material way in the future, such as changes in regulatory standards affecting fuel blends, then the relevant market definitions may need to be adjusted to reflect those changes.

Not all the defined relevant markets are currently being actively supplied. In particular, certain fuels are not currently actively supplied in the Fuel Sector, and certain other fuels (including for instance aviation fuels) are not currently actively supplied in all defined geographic markets and at all defined functional levels. The relevant markets are nevertheless defined for competition analysis purposes based on information on consumer behaviour and other relevant information – should those markets become

supplied in the future, the relevant market definitions would apply. The current absence of supply in those markets will be reflected in the next step of the Market Study, which will be the competition and market assessment.

3 PRINCIPLES OF MARKET DEFINITION

Competition assessment defines relevant markets in a particular way that may not always match how market participants think about their "markets". It is therefore useful to begin by outlining how markets are thought of in competition assessment, and what factors are taken into account in competition market assessment. This section outlines these concepts.

3.1 Market definition in competition assessments

Assessing how competition is functioning in a market commonly involves defining the relevant market in which the structure of the market and the conduct of the market participants may influence the conditions of competition. Market definition of the various relevant markets in the Fuel Sector is the purpose of this present Market Definition Report.

A defined "market" in competition assessment and competition law has a particular meaning. A market for competition law and analysis purposes is the product and geographic space in which rivalry and competition take place. Market definition establishes the relevant "field of inquiry" for competition analysis; it identifies those products and locations that may potentially constrain the economic decisions of participants in that field.

A market is commonly defined by reference to a product/service and its close substitute products/services, and a geography in which there is similar substitution. Within the bounds of a defined market there is substitution: substitution between one product and another, and between one source of supply and another, in response to changing prices. So a market is the field of actual and potential transactions between buyers and sellers amongst whom there can be strong substitution, at least in the long run, if given a sufficient price incentive.

Market definition is purposive, which means that the definition of a relevant market cannot be separated from the particular competition issue under investigation. Market definition always depends on the specific facts and circumstances of an inquiry, and evidence from market participants will often be highly important. Decisions relating to market definition in previous, albeit similar, competition inquiries may also be instructive as additional guidance.

3.2 Substitution as the key to market definition

Identifying relevant substitutes is key to defining a market. Substitution involves switching from one product to another in response to a change in the relative price, service or quality of two products (holding unchanged all other relevant factors, such as income, advertising or prices of third products). Market definition begins by selecting a product supplied by market participants in a particular geographic area and incrementally broadening the market to include the next closest substitute until all close substitutes for the initial product are included.

There are two types of substitution: demand-side substitution, which involves customer-switching; and supply-side substitution, which involves supplier-switching.

It will often be possible for consumers to substitute a wide variety of products in various geographic regions for the products of the market participants to some degree. Not all of these substitutes will be included in the relevant market. For instance, some customers might view seemingly remote products as substitutes under some limited circumstances, but not under many other circumstances. Such limited substitution may not be sufficient to result in the inclusion of those partial substitutes in the defined market. On the other hand, substitution does not have to be complete or instantaneous, and products do not have to be "perfect" substitutes to form part of the same market; they merely have to be sufficiently close substitutes to offer a meaningful and close competitive constraint on the particular geographic region (or a group of products or regions) in question.

3.3 The product dimension of a market

Product markets are therefore defined by evaluating the range of products (or services) that competitively constrain the product (or service) in question. Based on economic principles, all potential alternative products should be included in the same market if customers are likely to switch readily to said alternatives (demand side substitutability), or if production can switch readily to making those alternatives (supply side substitutability), or both. Demand side substitutability is commonly the starting point for the evaluation of market boundaries, but where supply side substitution can be done rapidly and readily, and without significant additional expense, then markets should be expanded on economic principles to include those ready supply side substitutes.

3.4 The geographic dimension of a market

Concurrent with evaluating the market in relation to the products (or services) that make up the market, the market is commonly also evaluated on its geographic dimensions. A defined product market determines the variety of alternative products that competitively constrain the product in question; a defined geographic market determines the geographic range over which that competitive constraint operates. If a customer will easily switch to a different location as an alternative potential source for a product, then that alternative location would be said to be in the same geographic market by principles of demand side substitutability. An assessment of the geographic market therefore commonly requires analysing how readily consumers will substitute between products located in different geographic locations and whether those different geographic locations will competitively constrain one another. Similarly, if the producer will readily switch to supplying the product from an alternative location, then that alternative location would be said to be in the same geographic market because of supply side substitutability.

3.5 The hypothetical monopolist test of market definition

To define markets, one therefore commonly starts by analysing how readily consumers will switch to other products and geographies. A common method of analysing consumer switching behaviour is to apply the so-called "hypothetical monopolist test". The hypothetical monopolist test starts with the smallest candidate market (in terms of products and geographies) and asks: if there was a hypothetical monopolist of the product in question, and the supplier increased the price by a small but meaningful amount, would consumers readily switch to other products (or locations), thereby rendering the price rise unprofitable for the hypothetical monopolist because of strong switching away? If consumers would switch readily to another product (or location), then that other product (or location) is a close enough substitute that it should also be included in the market – and as a result the defined market boundaries should be expanded to include it. On the other hand, if consumers would not readily switch away, then that other product (or location) is not a sufficiently close substitute, and therefore should not be included in the defined market. The price rise used to apply this test is usually a hypothetical small but significant, non-transitory increase in price (known as a "SSNIP") of a given product or service, which is commonly taken to be a long-lasting price rise of 5% or 10%.

However, while the hypothetical monopolist is a useful tool and "intellectual aid" for analysis, it is less often strictly applied to factual circumstances in a competition assessment, because it typically requires large amounts of complex data, and those data are often not sufficiently available. Consequently, in many competition assessment, other quantitative and qualitative information must be used as the basis of market definition. Nevertheless, the hypothetical monopolist test provides the analytical foundation for how such other information is applied, and the questions it seeks to answer: will consumers readily switch to other products and locations, or will they not readily switch?

3.6 Other factors to consider in market definition

A wide range of different information can be useful in different circumstances to identify close demand-side and supply-side substitutes and therefore to determine the product and geographic boundaries of defined markets. These include the following:

- Information from market participants to identify and assess the strength of substitution possibilities.
- The function or end use of the product.
- The physical and technical characteristics of the product.
- The costs to consumers of switching purchases between the product and potential substitutes, and of obtaining supply from alternative regions.
- Any limitations on the ability of customers to access alternative products, or sources of supply in alternative regions.
- The views and past behaviour of buyers regarding the likelihood of substitution between products
- Evidence of buyers switching to other products in response to price increases in the recent past.

- Evidence of producers redeploying their production capacity in response to price increases in the recent past.
- Costs of switching production and distribution systems from another product line to a product that is closely substitutable with the relevant product
- Views, business records and past behaviour of suppliers of the relevant products regarding the impact of price and marketing decisions by suppliers of potential substitute products on their own pricing and marketing decisions.
- Relative price levels and price movements of the product compared to potential substitutes, and relative to different geographic sources of supply.
- The portability of the relevant product as determined by its perishability, weight, etc.
- Transportation costs to move the relevant product between regions (particularly the transportation costs as a proportion of total value of the product)
- Any regulatory or other practical constraints on suppliers selling alternative products or selling to alternative regions.
- Records relating to trade flows and the actual movement of customers and/or suppliers between geographic regions, especially related to changes in relative prices across regions in the recent past.
- Views and business records of buyers and suppliers regarding the likelihood of switching between geographic sources of supply.

In some circumstances, a market may comprise several products or regions that overlap with each other in "chains", even where the extreme ends of the "chains" are not directly closely substitutable. An example is in geographic market definition where transport costs matter. Consumers or suppliers might be limited to certain areas around their location (a consumer's residence, or a supplier's plant) because of the existence of transport costs. However, if the distribution of locations of the different consumers or suppliers is such that there are strong overlaps between the areas around different consumers or plants, then it may be that the pricing of the relevant products will be constrained by a chain substitution effect, and lead to the definition of a broader geographic market. As a practical matter, for a chains of substitution effect to be established for market definition purposes, this would require showing price interdependence across the chain, including determining that price levels at the opposite ends of the chain are sufficiently close related to each other for the whole chain to be considered as part of the same market.

3.7 The resulting defined market

The resulting defined market will be the narrowest set of products (or services), over the narrowest geographic range, in which the products and locations are sufficiently close constraints on each other that the market is a sufficiently unified (or homogeneous) field of rivalry between different producers.

4 PRODUCT MARKETS

The previous Section 3 outlined the principles adopted for market definition in standard competition analysis and by most modern government competition authorities. In this section, those principles are applied to the Fuel Sector in the Cayman Islands to determine the product dimensions of the market definitions that we recommend should be applied to the Fuel Sector.

4.1 The Industry levels

Fuels generally pass through a number of stages and hands before reaching their final customers.

Over its entire production cycle, the fuels industry is commonly considered to be divided into two main segments:

- The "**upstream**" segment, consisting of the exploration of oil, development, extraction, transport and sales of crude oil in relation to petroleum-derived products, and analogous production activities in relation to other non-petroleum fuels; and
- The "**downstream**" segment, consisting of oil refining, primary transport and storage of refined products, wholesale operations, secondary transport and storage and retail sales in retail stations on and off motorways and other roadways.

The downstream segment of fuels products may be more finely divided into different activities and production levels in accordance with the supply chain segments of fuels. The supply chain of petroleum products in the downstream segment involves several stages. Three main stages in the value chain of refined products may be highlighted:

- The **Refining or Importing of Fuels** – this stage refers to the refining of crude oil to produce petrol or diesel in the case of petroleum-derived fuels, the blending of fuel components, or the import of fuels from abroad.
- The **Wholesale Transportation and Bulk sales of Fuels** – this stage is where the fuels (which are the refined products in the case of petroleum-derived fuels) are then transported to large capacity storage which serves as a distribution terminal. Transport modes generally may include marine tankers, pipelines, road tankers, rail, and barges – not all these transport modes are used in the Cayman Islands. Large-scale operators may resell part of their purchases in bulk to other operators, to retailers and to major industrial clients. This is a second level of distribution, as it normally involves lower quantities when compared to ex-refinery sales. The refined products are transported to the customer (either a wholesaler or a retailer) by road tanker or truck bearing ISO containers.
- The **Retailing of Fuels** – this stage refers to sales in retail stations to final consumers, typically from retail stations in the case of road vehicles, marinas in the case of marine vessels, or from other retail outlets or channels in the case of other fuels. Different categories of retail stations exist: retail stations selling under

the brand of oil companies, independent retail stations, and retail stations selling under the brand of retail distribution chains.

There are several markets in the fuel sector, placed at different stages of the value chain, with diverse supply and demand characteristics. The various markets have different geographic dimensions, from markets with a global scale to markets which are national, regional or local in scope. In the short term, price movements in these markets may not always go together. Nonetheless, these groups of markets are closely interconnected, and although time lags and asymmetries in the adjustment of prices downstream to changes in the prices upstream exist, prices in these different markets are interrelated in the long term.

4.2 The industry levels in the Cayman Islands

The Fuel Sector in the Cayman Islands does not include any material activities in the upstream sector: there is no crude oil extraction in the Cayman Islands, nor is there any large commercial-scale production of any other non-petroleum fuels beyond local production of small quantities of biodiesel. None of the relevant upstream markets therefore exist in the Cayman Islands, and these are therefore not considered further in the Market Definition Report. However, these upstream markets *are* further considered in the Market Assessment Report to the extent that they influence the competitive dynamics of markets that exist in the Fuel Sector in the Cayman Islands.

Similarly, at the "highest" level of the downstream segments, no refining takes place in the Cayman Islands, and there is no reasonable prospect that there will be refining in the foreseeable future. All fuels of meaningful commercial quantities in the Cayman Islands are imported. Refining of fuels is therefore also not considered further in the Market Definition Report, although it is considered in the Market Assessment Report to the extent that the competitive dynamics in refining influences markets existing in the Fuel Sector in the Cayman Islands.

The three activities that do take place directly in the Cayman Islands are the remaining three activities in the Fuel Sector supply chain: importing of fuels, wholesale distribution of fuels, and retail distribution of fuels. These three activities are therefore considered as the three potential candidate supply chain levels for market definition.

4.2.1 Importing of fuels

Importing of fuels is the bulk purchase of commercial quantities of the relevant fuel from abroad and the shipping or other transporation of them to the Cayman Islands. In the Cayman Islands, fuel is essentially imported by two different routes: (1) as bulk shipments brought in dedicated vessels and transferred ashore by way of a pipeline to bulk storage tank facilities at Jackson Point on Grand Cayman and Creek on Cayman Brac, and (2) in standardised International Organisation for Standardisation ("**ISO**") compliant container-sized tanks brought in container vessels and brought ashore by way of the container port on Grand Cayman and by barge to Cayman Brac and Little Cayman.

Purchasers of imports in the Fuel Sector are principally Cayman Islands commercial purchasers and bulk users. The suppliers are manufacturers and refiners abroad and the providers of shipping and other transporation services.

As outlined in Section 3 above, a central question in market definition is whether customers of a particular product or service (or location) would readily switch to an alternative product or service (or location) in the event of a certain price rise e.g. a permanent 5% price rise in the product in question (a SSNIP). In the case of the Fuel Sector and the importation of fuels, the following points are most relevant in delineating the industry level of the markets:

- Similarly, while switching from retail to wholesale/bulk local sources may in theory be possible, it is unlikely to take place in sufficient quantities to competitively constrain imports. This is for similar reasons: local bulk sales are ultimately entirely sourced from imports, and invariably have higher prices than pure import landed prices because of additional costs and margins. Switching to local bulk sales, while it may take place in restricted quantities including in cases of temporary supply interruptions, in the general case switching will not be strong enough to merit the inclusion of imports and wholesale/bulk sales in the same market.
- The geographic scope for the sourcing of imports is by definition outside the Cayman Islands, and is at least regional (North America and adjacent regions) and potentially world-wide.
- There is little prospect that an importer of fuels would turn to local retail sources as an alternative to importing fuels if the price of imports rose by a SSNIP, as the local retail sources are all themselves entirely dependent on imports. Retail prices are in almost all cases invariably substantially higher, as retail prices also incorporate additional costs and margins from the wholesale/bulk and retail supply chain elements, which pure imports ordinarily do not need to take into account. Retail unit prices are therefore generally too high (compared with the comparable import unit prices) to incentivise sufficient switching. Moreover, switching to local retail sources for bulk quantities is in most cases not practical and therefore not realistically feasible. Switching would therefore not be sufficient to merit the inclusion of imports and retail sales in the same market.

As a result of these considerations, markets for fuels should be defined separately at the landed import level distinctly from the wholesale/bulk and retail levels of the supply chain.

4.2.2 Wholesale and Bulk Distribution of fuels

The wholesale and bulk distribution of fuels is the part of the supply chain where fuels, once imported (in the case of the Cayman Islands), are then transported to large capacity storage, and transported and on-sold to other operators, to retailers and to major industrial clients.

This functional level ultimately concerns the sale of fuels within the Fuel Sector in the Cayman Islands. From this very broad perspective, this functional level therefore comprises of broadly comparable activities to those in the retail level, which also

concerns the sale of fuels to customers. One must therefore consider whether wholesale and retail should be considered to be within the same defined markets for competition purposes. The following points are the most relevant in delineating the wholesale and retail segments of the Fuel Sector:

- It is conventional in the industry to distinguish between wholesale and retail sales as comprising quite different activities and market dynamics.
- It is similarly conventional within competition analysis in most jurisdictions to distinguish wholesale and retail sales, as the functional activities, market participants, and market dynamics in these different segments are quite distinct from one another. The buyers in the wholesale/bulk segments are generally other operators, retailers, and large-scale industrial clients; the buyers in the retails segments are generally end consumers and small-scale commercial buyers.
- These quite distinct customer groups will generally not substitute sufficiently or plausibly between bulk-scale purchases and retail-scale purchases in the face of a SSNIP. Bulk sales are conducted at large volumes that are generally incompatible with the volumes needs of retail customers. Bulk sales also require storage facilities that retail customers generally do not possess. Moreover, as outlined above, retail prices are almost invariably higher than wholesale prices, because they involve an additional step in the supply chain and thereby involve additional costs and margins. It is therefore highly unlikely that sufficient wholesale customers would switch to retail sources in the face of a SSNIP in the ordinary course of these markets' operation.

4.2.3 Retail Distribution of fuels

Retail distribution of road fuels commonly takes place through retail stations for the fuelling of road vehicles. In case of other fuels such as home cooking fuels, retail distribution commonly takes place through other retail outlets or home delivery by the supplier. Retail distribution is essentially the sale of fuels in quantities and through outlets amenable to the final end consumer of these products (other than large bulk sales to commercial customers).

As outlined immediately above, retail customers would not be expected to switch to bulk sources (imports or wholesale sources) in the face of a SSNIP.

4.2.4 Market Definition at the supply chain level

As a result of the considerations in this section, markets in the Fuel Sector should be defined separately for:

- The importation of fuels;
- The wholesale or bulk sales of fuels; and
- The retail sale of fuels.

4.3 The Products

A number of fuels are sold in the Fuel Sector in the Cayman Islands and are potentially covered by the URC Law, the DS Law, the DS Regulations, and the FMR Law. This section outlines the different fuels potentially at issue, and the appropriate product market definition in relation to those fuels.

4.3.1 Gasoline (Petrol)

Gasoline (also known as "petrol") is a petroleum-derived flammable liquid. It is produced in oil refineries.

Gasoline is primarily used as a fuel in internal combustion engines that are designed for gasoline use. In practice, gasoline-fueled internal combustion engines are primarily found used in passenger cars, with smaller numbers in heavier vehicles such as buses.

From consumers' perspective, different grades of gasoline are further differentiated according to their octane ratings. The octane rating is a standard measure of an engine fuel: the higher the octane rating, the higher the fuel performance in a gasoline engine, but also the higher the price consumers are willing to pay.

The principle issue for determining the product dimension of market dimension is whether or not consumers, when faced with a price rise (SSNIP) in relation to the product in question, will readily switch to other alternatives in large numbers, in which case the market definition must be expanded to include the alternative(s), or whether they will reduce their consumption of the product somewhat but will not readily switch to alternatives, in which case the market definition should not be expanded to include the alternative(s). Where there is evidence of switching, quantitative studies of the kind outlined in Section 3 may be the best evidence to determine the extent of switching. However, where there are clear constraints on switching of a regulatory or technical nature, then this may be sufficient evidence to determine the market definition.

Internal combustion engines are designed for particular fuels. Engine modifications may permit some substitution of fuels in certain specific cases, but in the general case it is not possible to substitute a different fuel for that fuel for which the engine was designed. For instance, if one puts diesel fuel or kerosene into an engine designed for gasoline fuel, then the engine will not operate (at best) and may require repair or be ruined.

This is sufficient to conclude that gasoline is generally not a viable substitute with other fuels. Specifically, the ordinary consumer, when faced with a 5% increase in the price of gasoline relative to the price of diesel, will not readily fill their car with diesel instead, because their car will not work and may be ruined.

One can therefore readily conclude that gasoline is manifestly not in the same product market as diesel, kerosene, hydrogen, or most other fuels.

Two issues remain in relation to defining the product dimension of gasoline markets:

1. Should one define separate markets for different grades of gasoline according to different octane ratings? The evidence suggests that different grades of gasoline should all be defined as constituting a single market. First, from an

engineering perspective, different grades of gasoline are closely substitutable for one another in gasoline-designed engines. Second, there is good evidence that consumers *are* sufficiently price sensitive as regards the relative prices of different ratings of gasoline, and readily switch between them in response to changes in relative prices. Third, there is ready supply-side substitutability between different grades of gasoline as they are all delivered using the same equipment and facilities, which can readily accommodate a supplier switching the grade of gasoline being delivered at the pump. Fourth, no major competition authority has defined separate markets for different grades of gasoline, but authorities have instead generally defined the relevant market as being the market for "gasoline" of all grades.

2. Should ethanol and ethanol blends be defined as constituting separate market, or should they be defined as belonging to the same market as gasoline? This issue is addressed in the sections immediately following.

Market participants have raised the issue of whether racing fuel may be defined as comprising part of the product market for gasoline. Racing fuel is very high octane gasoline containing other boosting agents, and it is currently imported into the Cayman Islands in small but commercial quantities. We judge that racing fuel ought to be defined as part of the general gasoline market. Performance differences aside, it is fully functionally interchangeable with regular and premium gasoline in engines for most purposes. To our understanding racing fuel gasoline is governed by the same safety standards as regular gasoline, meaning that there is no impediment to consumer substitutability from the regulatory perspective. However, should separate safety standards apply to racing fuel in the future in a way that materially reduces the ability of consumers to switch between regular gasoline and racing fuel gasoline, then this may alter the analysis sufficiently in favour of racing fuel being defined as a separate market.

4.3.2 Ethanol

Ethanol fuel is the chemical ethyl alcohol (C_2H_5OH). It is produced industrially by ethanol fermentation of glucose from crops such as corn and sugarcane, and as a product of petroleum by hydration of ethylene or acetylene.

Industrially-produced ethanol is primarily used as a fuel in internal combustion engines. Ethanol is also the same type of alcohol found in alcoholic beverages.

Pure ethanol (not blended with gasoline, diesel, or other petroleum-derived fuels) can only be used as a fuel in engines that have been designed or modified for that purpose. Vehicles that may run on pure hydrous ethanol (also called "E100") are currently principally in use in Brazil as a result of sustained government policy to promote "neat ethanol" vehicles.

This is sufficient to conclude that pure ethanol is not generally a viable substitute for gasoline or other road fuels. Specifically, similar to lack of substitution between gasoline and diesel, the ordinary consumer faced with a 5% increase in the price of gasoline relative to the price of pure ethanol, will not readily fill their car with ethanol instead. Similarly, ethanol is also not a ready substitute for other road fuels such as diesel, or other non-road fuels.

One can therefore readily conclude that ethanol is not in the same product market as gasoline, diesel, kerosene, hydrogen, or most other fuels.

4.3.3 Ethanol Blends

Ethanol blended fuels are mixtures of gasoline and ethanol in varying proportions. They are primarily used in internal combustion engines.

The degree to which ethanol blends can be used in internal combustion engines as substitutes for pure gasoline depends on the proportions of gasoline and ethanol in the blend. Any mixture of 10% or less ethanol with the remainder being gasoline can generally be used in most modern gasoline-powered vehicles without the need for any modification of the engine or fuel system in the vehicle. Gasoline/ethanol blends with 10% ethanol (known as "E10") or lower proportions of ethanol such as 5% ("E5" gasoline) and 7% ("E7" gasoline) are in common, legal use in a number of countries and jurisdictions including the United States of America, Jamaica and the Cayman Islands.

At blend ratios with more than 10% of ethanol, substitution between pure gasoline and ethanol/gasoline blends becomes more difficult. The expert evidence suggests that there is a "blend wall" of 10% ethanol above which the blends can no longer be substituted for pure gasoline without consequences or difficulties, with these adverse consequences increasing as the proportion of ethanol increases. Blends with 15% ethanol ("E15" gasoline) are also in use in some locations and for some motor vehicles, but subject to greater restrictions. For instance, in the United States the Environment Protection Agency has authorised the use of E15 gasoline in passenger cars with a model year of 2001 or later, but not for cars older than this, and not for use in motor-cycles, heavy-duty vehicles, or non-road engines. Moreover, most vehicles in current production are not approved by their manufacturers as compliant with E15 gasoline; moreover, a number of major vehicle manufacturers have warned that the warranties attached to their vehicles do not cover damage related to the use of E15 gasoline.

Marine equipment and marine vessels commonly have a lesser ability to tolerate ethanol blending in gasoline than do modern road vehicles, because the ingression of traces of water that is more likely in a marine environment is not suitable for ethanol blended gasoline, meaning that ethanol blends are generally not recommended for (and commonly prohibited by the manufacturers of) marine engines. As a result, gasoline customers in a marine environment are less likely to substitute readily between pure gasoline and ethanol blended gasoline. However, the appropriate analysis in market definition as to whether a potential substitute is not whether *all* consumers would switch to the substitute in the face of a SSNIP price rise; the appropriate analysis is whether *sufficient* consumers might switch to make the price rise unprofitable, in which case the market definition is widened. In the case of marine engines, this means that the inability of some gasoline-fueled engines to tolerate ethanol blends does not prevent a market definition that includes ethanol blends, as long as a sufficiently large number of customers operating road vehicles are able to and would readily switch to ethanol blends. In the Fuel Sector, the substantial majority of gasoline sales are in respect of road vehicles able to substitute to blends.

As a consequence, we judge that ethanol-gasoline blended fuels with 10% or less of ethanol are readily substitutable with pure gasoline and are in the same product market as pure gasoline. However, ethanol-gasoline blended fuels with more than 10% of ethanol are *not* sufficiently readily substitutable with pure gasoline to satisfy the conditions for being in the same market.

As a result, we conclude that there is a separate market for competition purposes for ethanol-gasoline blended fuels with more than 10% of ethanol.

This market definition is dependent on the state of technology of internal combustion engine production as is available in motor vehicles available to the mass market, associated regulatory standards regarding the "blend wall" for ethanol-gasoline blended fuels, and other related factors. Should the state of engine technology change so that a sufficient number of motor vehicles can readily use higher-level ethanol blends without modification or risk of engine damage, then the present product market assessment may be changed in line with changing technology. Similarly, should regulatory standards change in a way materially affecting the ability and willingness of consumers to substitute between potential alternatives, then the present product market definition would likely need to be adjusted in accordance with those changes. However, a changing product market definition would require that a substantial proportion of vehicles in current use can use the higher-level ethanol blends without adverse consequences; as vehicles currently in use are expected to have remaining lives of many years, any change in this market definition would only likely occur on a time horizon of many years in the future, and would require evidence that a sufficient proportion of cars on the road can use the higher-level blends highly interchangeably.

4.3.4 Diesel

Petroleum-derived diesel (hereafter known simply as "**diesel**") is a petroleum-derived flammable liquid. It is produced in oil refineries as a fractional distillate of petroleum fuel oil.

Diesel is used in internal combustion engines that are designed for diesel use. Diesel-powered engines have a wider use than gasoline-powered engines. Diesel-powered passenger cars are commonly available, and widely used in some areas (in particular Europe) but less in other areas (in particular North America). However, heavy vehicles such as buses, trucks, tractors, off-road vehicles, and military vehicles are more commonly equipped with diesel engines and much less commonly with gasoline engines. One reason is that diesel engines are particularly fuel efficient (relative to gasoline engines) when run at part-load, such as is relatively common for heavier vehicles. Diesel is also in common use in heavier industrial machinery, including as the primary fuel driving turbines in the generation of electricity; in the Cayman Islands, aside from a relatively small amount of peak load solar capacity, essentially all commercial electricity is generated using diesel-fueled turbines.

From consumers' perspectives, different grades of diesel are further differentiated according to their sulphur contents, with ultra-low-sulphur diesel ("**ULSD**") referring to diesel that has been refined with substantially lowered sulphur contents. Currently, virtually all diesel in the North American and European markets and in the Cayman

Islands for vehicle use is ULSD. Diesel fuels are also differentiated according to their cetane number ratings, with fuels with higher cetane numbers having higher performance characteristics and commonly commanding higher prices in the form of "premium" diesel or similar.

As discussed earlier, internal combustion engines are designed for particular fuels, and different fuels cannot generally be substituted for one another in such engines. This is sufficient to conclude that diesel is generally not a viable substitute with other fuels. The ordinary consumer, when faced with a 5% increase in the price of diesel relative to the price of other road fuels, will not readily fill their car with those other fuels instead.

Similar consideration apply in relation to the other uses of diesel. A significant use of diesel in the Fuel Sector in the Cayman Islands is in electricity generation, with the electricity generating companies being bulk purchasers of diesel from the wholesalers for this purpose. Evidence gathered from the market establishes that the current electricity generating assets in the Cayman Islands could from the technical perspective not be switched to using other fuels without very significant capital works; moreover, there has been no switching in the face of diesel price fluctuations that would be sufficient to constitute a "SSNIP" price change. As a result, one can conclude that diesel is in a separate market to other fuels at the wholesale/bulk level as well as at the retail level.

One can therefore readily conclude that diesel is not in the same product market as other fuels.

Two issues remain in relation to defining the product dimension of diesel markets:

1. Should one define separate markets for different grades of diesel according to their sulphur contents? The evidence suggests that different grades of diesel should all be defined as constituting a single market. First, from an engineering perspective, different grades of diesel are almost perfectly substitutable for one another in diesel-designed engines; the different sulphur contents do not generally prevent such substitution. Second, there is ready supply-side substitutability between different grades of diesel as they are all delivered using the same equipment and facilities, which can readily accommodate a supplier switching the grade of diesel being delivered at the pump. Third, no major competition authority has defined separate markets for different grades of diesel, but authorities have instead generally defined the relevant market as being the market for "diesel" of all grades.
2. Should biodiesel and biodiesel blends be defined as constituting separate market, or should they be defined as belonging to the same market as diesel? This issue is addressed in the sections immediately following.

4.3.5 Bio Diesel and Bio Diesel Blends

Bio diesel is a flammable liquid derived from oils or fats through an industrial process also involving alcohol.

Bio diesel has essentially interchangeable uses with petroleum-derived diesel. It can be used in diesel-powered engines as pure bio diesel or blended with petroleum-derived diesel, subject to certain limitations.

Blends of bio diesel and petroleum-derived diesel are products most commonly distributed for use in retail diesel markets. Blends are commonly indicated by a "B" factor, with for instance B100 referring to pure 100% bio diesel, B20 referring to 20% bio diesel blended with 80% petroleum-derived diesel, and similar.

As with petroleum-derived diesel, there is an upper limit (a "blend wall") on the proportion of bio diesel that can be blended with petroleum-derived diesel without potential adverse consequences for the engine or consumers. Blends of 5% biodiesel or less can almost universally be used fully interchangeably with pure petroleum-derived diesel; and blends of 20% bio diesel or less can generally also be used in diesel equipment without modification or only minor modifications necessary. Blends of above 20% bio diesel (including pure bio diesel, B100) may require more substantial modifications.

As a consequence, we judge that diesel-biodiesel blended fuels with 20% or less of biodiesel are readily substitutable with pure diesel and are in the same product market as pure diesel. However, diesel-biodiesel blended fuels with more than 20% of biodiesel are *not* sufficiently readily substitutable with pure diesel to satisfy the conditions for being in the same market.

As a result, we conclude that there is a separate market for competition purposes for diesel-biodiesel blended fuels with more than 20% of biodiesel, including pure biodiesel.

As was also observed in relation to gasoline-ethanol blends, this market definition is dependent on the state of technology of internal combustion engine production as available in passenger and other vehicles and available to the mass market, associated regulatory standards regarding the "blend wall" for diesel-biodiesel blended fuels, and other related factors. Should the state of engine technology change so that a sufficient number of motor vehicles can readily use higher-level biodiesel blends without modification or risk of engine damage, then the present product market assessment may be changed in line with changing technology. Similarly, should regulatory standards change in a way materially affecting the ability and willingness of consumers to substitute between potential alternatives, then the present product market definition would likely need to be adjusted in accordance with those changes. However, a changing product market definition would require that a substantial proportion of vehicles in current use can use the higher-level biodiesel blends without adverse consequences; as vehicles currently in use are expected to have remaining lives of many years, any change in this market definition would only likely occur on a time horizon of many years in the future, and would require evidence that a sufficient proportion of cars on the road can use the higher-level blends highly interchangeably.

4.3.6 Jet Fuel and Kerosene

Jet fuel refers to a class of petroleum-derived flammable liquids produced in oil refineries. The majority of jet fuel commercially sold is based on kerosene, a petroleum-based flammable liquid; other jet fuels are based on naphtha, a flammable liquid produced from petroleum distillates or natural gas condensates. There are different types of jet fuel commercially available, with the different types being defined

according to performance specifications. Type Jet A-1, a kerosene-based jet fuel, is the standard jet fuel used in most of the world, except in the former Soviet states where the kerosene-based TS-1 is also in common use. Naphtha-based jet fuels are generally used only in military aviation rather than in civil aviation, and are therefore not considered further in this report.

Jet fuel is based on kerosene, but refined to a higher standard, with the addition of additives to aid in clean burning and to prevent ice formation and corrosion.

As with combustion engines generally, aviation turbine engines are designed to operate using specific fuels, and other fuels cannot ordinarily be substituted without harm to the engine. Accordingly, users of jet fuel are prevented by technical restrictions from substituting to other fuels, and would therefore manifestly not substitute even in the face of an appropriate price rise (a SSNIP).

Accordingly, one can define the product dimension of this market as being for "jet fuel and kerosene."

4.3.7 Propane (LPG)

Propane is a flammable hydrocarbon. It is produced as a by-product of petroleum refining and natural gas processing. Propane is a gas at standard temperatures and pressure, but it is commonly compressed to a liquid for transportation and storage. In its liquid form, it is also commonly known as liquified petroleum gas ("**LPG**").

Commercially available propane is generally not pure C_3H_8, but rather is C_3H_8 blended with other hydrocarbons such as ethane, propylene, or butanes, in proportions varying by location and commercial factors. The United States Heavy Duty 5 (HD-5) standard for propane is blended with no more than 5% propylene along with allowable butanes and ethane according to the relevant ASTM International standard. There are other standards of propane, such as HD-10 which contains no more than 10% propylene along with allowable butanes and ethane; HD-10 has not been considered for importation into the Cayman Islands. For certain uses such as cooking fuels, propane can be mixed with higher proportions of butane; depending on the applicable safety standards, propane/butane mixes with butane proportions of up to 50% may be used.

As LPG, propane is commonly transported and stored in standardised steel cylinder tanks. Propane is commonly used as a cooking fuel both in home use and for portable cooking facilities such as barbeques, for home heating, and for small-scale electricity generation such as home generators. Propane also has certain commercial and industrial uses.

As with combustion devices generally, including home cooking devices and similar devices powered by propane, they are designed to operate using specific fuels, and other fuels cannot ordinarily be substituted without harm to the device, or danger to the operator. Accordingly, users of propane in such devices are prevented by technical restrictions from substituting to other fuels, and would therefore manifestly not substitute even in the face of an appropriate price rise (a SSNIP). However, propane users are not similarly prevented from substituting to propane-based fuels blended with butane or ethane up to the blend proportions tolerated by propane equipment.

Accordingly, one can define the product dimension of this market as being for "propane gas and propane gas blends able to be used on propane-based equipment."

4.3.8 Natural Gas (LNG and CNG)

Natural gas has is a flammable mixture of hydrocarbons consisting mainly of methane, mixed with certain amounts of ethane. It is produced from hydrocarbon natural deposits. Natural gas is a gas at standard temperatures and pressure, but it liquifies when sufficiently cooled in temperature. In its liquid form at cool temperatures, natural gas is also commonly known as liquified natural gas ("**LNG**"); in its compressed form at ambient temperatures, it is also commonly known as compressed natural gas ("**CNG**"). Natural gas is commonly transported through long-distance pipelines in a gaseous but compressed state, or as ocean-going cargo in its LNG form. The principle difference between LNG and CNG is the storage method; the underlying fuel in both cases is natural gas.

Natural gas has a wide range of uses, including large-scale electricity generation, small-scale domestic use including home heating and cooking, and as an industrial feedstock in a variety of processes including fertilizer manufacturing. In its LNG form, its uses include domestic uses and to power certain types of vehicles, including larger trucking, and passenger cars in some jurisdictions.

As with combustion engines generally, natural gas-fueled devices including electricity generators and domestic use devices are designed to operate specifically using natural gas, and other fuels cannot ordinarily be substituted without harm to the engine, generator, or device. Accordingly, users of jet fuel are prevented by technical restrictions from substituting to other fuels, and would therefore manifestly not substitute even in the face of an appropriate price rise (a SSNIP). Similar lack of switching is evident in relation to potential bulk uses of natural gas in electricity generation. A significant potential use of natural gas in the Fuel Sector in the Cayman Islands is in electricity generation, as a long-term potential substitute for diesel-fueled generators. However, switching from diesel to natural gas, or from natural gas to diesel or any other generation fuel, would require very significant capital works and refitting of the relevant plants, and therefore switching could not be readily done and would not likely occur merely as the result of a small price rise (a SSNIP); rather, switching would occur as part of a much larger strategic and long-term planning process considering many different strategic and economic factors. Moreover, there has evidently been no switching in fuels in the face of natural gas or other fuel price fluctuations that would be sufficient to constitute a "SSNIP" price change.

As a result, one can conclude that natural gas when introduced will be in a separate market to other fuels at the wholesale/bulk level as well as at the retail level.

4.3.9 Aviation Gas

Aviation gas (also known as "**avgas**") is a petroleum-derived flammable liquid. It is produced in petroleum refineries.

Avgas is used as an aviation fuel in certain types of non-turbine internal combustion engines used in aircraft, predominantly piston-driven aircraft.

Modern gasoline is not substitutable in its uses with aviation gas. Gasoline on sale in most jurisdictions today, including in the Cayman Islands, is unleaded gasoline permitting the use of catalytic converters. In contrast, the most commonly used grades of avgas are still leaded, for mechanical engine reasons including to prevent a phenomenon known as "engine knocking". Certain specific aviation gas-fueled aviation engines, including engines in certain ultralight aircraft, are capable of taking gasoline not containing ethanol as a substitute for aviation gas. However, for the majority of non-turbine aviation engines, ordinary motor gasoline cannot be used as a substitute for aviation gas.

Accordingly, one can conclude that avgas is in a separate market to gasoline and other petroleum-derived fuels.

4.3.10 Butanes

Butane is a flammable hydrocarbon. Butane is a gas at standard temperatures and pressures but it liquifies relatively readily. It is commonly found dissolved in crude oil.

Butane is commonly used as a blend with or additive to other hydrocarbons including gasoline and LNG, as a feedstock in certain industrial processes, and as a fuel for small-scale uses including in cooking gas cylinders and in cigarette lighters.

As with other fuels, the core test for market definition is whether or not consumers would readily switch to alternatives in the face of a small increase in the price of butanes (a SSNIP). Our understanding is that in most of its uses, other fuels cannot be readily substituted for butanes in existing butane-based equipment. For instance, pure or predominately butane gases and propane-based gas require different equipment (different gas injectors) for use with cooking stoves, as the air-to-gas ratios required for each fuel is quite different; as a result, switching between them would require investment in capital equipment, which sharply reduces the prospect of ready switching.

Accordingly, one can conclude that butane gas including predominately butane gas blends is in a separate market to other fuel gases and other fuels.

4.3.11 Hydrogen for use in Fuel Cells

A fuel cell is an electrochemical cell that converts a fuel and oxygen into electricity through electrochemical reactions inside the fuel cell. Fuel cells require a continuous source of fuel and oxygen to generate electricity continuously. There is a wide variety of designs, fuel sources, and applications of fuel cells. Fuel cells fuelled by hydrogen are under development for use in powering passenger vehicles, and there has been initial small-scale commercial release of several models by large car manufacturers. The fuel used in these vehicle is hydrogen.

Hydrogen is an uncompounded chemical element, and the most abundant chemical substance in the universe. In its natural state it exists as a gas at standard temperature and pressure, but it liquifies at extremely low temperatures. However, the gas is very

rare on Earth, and almost all of the hydrogen existing on Earth exists in compounded form, including in water, all hydrocarbons, and almost infinite other compounds. Its uncompounded form is predominantly produced in a variety of chemical and thermochemical processes and through the electrolysis of water.

It should be noted that there is currently no existing market for hydrogen in the Cayman Islands for use in fuel cells. However, as technology in fuel cell vehicles develops and becomes commercially viable, one may expect that this market would develop in the Cayman Islands. Accordingly, this potential future market is designed here in the Market Definition Report in anticipation of its coming into existence, and is addressed in more detail in the Market Assessment Report concerning future market developments to be taken account in an updated regulatory framework for the Fuel Sector.

Fuel cells are an entirely separate technology from the combustion engines (internal and otherwise) generally under focus in this report. There is simply no possibility at all for the substitution of hydrogen for any petroleum-derived or other such fuel.

Hydrogen is therefore in a separate market from other fuels on a product dimension.

4.3.12 Acetylene

Acetylene is a flammable hydrocarbon. It is most commonly manufactured as a by-product of the combustion of other hydrocarbons. Acetylene is a gas in its untreated form at standard temperatures and pressures, but as it is unstable it is commonly converted into solutions in other liquids and thus handled in liquid, dissolved form.

Acetylene has certain highly specific industrial-type applications. A primary use is in welding, as the fuel used to power oxyacetylene gas welding torches; the welding equipment used does not operate with alternative fuels. Acetylene also is used as the power source in certain specific types of lighting, including LED lighting, although its use for lighting in mining operations has essentially been phased out because of safety concerns. Acetylene also is used as a feedstock in certain chemical processes, although this use is in sharp decline due to environmental considerations.

There is some, limited substitutability between acetylene and propylene (also noted in the following section on propylene). However, in respect of the majority of the uses of acetylene, neither propylene nor any other fuel is technically substitutable for acetylene. One can therefore conclude that there is not sufficient substitutability between acetylene and propylene for these two gases to create a sufficient competitive constraint on one another to justify defining a market that includes both gases (or any other alternative gas).

Acetylene is therefore in a separate market on its product dimension from other gases and fuels.

4.3.13 Methanol

Methanol (also known as methyl alcohol) is a chemical primarily produced by industrial manufacturing processes. It is a flammable liquid at standard temperatures and pressures.

It is predominantly used as a precursor chemical to a wide variety of other industrial chemicals, including formaldehyde, ether, and a wide variety of other specialised chemicals.

Methanol has been proposed as a potential alternative fuel source to petroleum-derived hydrocarbons for internal combustion engines, either blended with gasoline or independently. However, the adoption of methanol as a motor fuel has been extremely limited, currently being confined to certain motor racing sport engines. Methanol is not substitutable for gasoline or diesel in standard commercially-available vehicle engines.

There is currently no existing market for methanol in the Cayman Islands for use as a road or other fuel (although relatively small quantities are used as a feedstock in the local production of biodiesel). Moreover, the prospects of the large-scale commercial adoption of methanol as a fuel (as opposed to certain niche activities such as motor sports) appear unclear. However, should this situation change as technology evolves, and should the use of methanol as a road fuel become commercially viable, then the use of methanol as a fuel would presumably fall under the broader regulatory framework for the Fuel Sector. Accordingly, this potential future market is designed here in the Market Definition Report in anticipation of its coming into existence, and is addressed in more detail in the Market Assessment Report concerning future market developments to be taken account in an updated regulatory framework for the Fuel Sector.

Methanol cannot currently be used as an alternative fuel in any engines designed to be fuelled by other fuels such as gasoline or diesel. Similarly, methanol-fueled engines cannot accept other fuels as substitute fuels. Methanol is therefore in a separate market from other fuels on a product dimension.

4.4 Other Potential Future Fuels

The fuels for which markets are defined in this Report are those currently in use in the Fuel Sector or which may realistically come into use in the foreseeable future. In addition to these fuels, there are other fuels that are not currently in the foreseeable fuels mix for the Cayman Islands. Nevertheless, there may be a sufficient change in markets, consumer demand, and technology which would introduce such new fuels into the potential fuels mix in the Fuel Sector. By way of example, such potential future fuels may include:

- Propylene;
- Ethylene;
- Butylene;
- Butadiene; and
- Fuels for which the technology is not yet available.

Should these or other new fuels be introduced in the future, then there may be a need and justification for markets to be defined by OfReg for such new fuels. Such a market definition process including the product dimension of the market definition would broadly follow the same analytical approaches as are used in this Market Definition

Report and would be based on comparable considerations, which may include a similar public consultation process.

5 GEOGRAPHIC MARKETS

Section 3 outlined the principles adopted for market definition in standard competition analysis and by most modern government competition authorities. In the previous Section 4, the product dimensions of the market definitions of the Fuel Sector were outlined. In this section, the market definition principles are applied to the Fuel Sector in the Cayman Islands to determine the geographic dimensions of the market definitions that we recommend should be applied to the Fuel Sector.

5.1 Geographic markets – consumer behaviour is the main factor

The core principle of geographic market delineation is equivalent to the product dimension – to what extent will consumers (or suppliers in the case of supply-side substitution) readily switch to another location to purchase the same product if the price of the product experiences a slight rise in price (a SSNIP) in their current location? Another way of asking this question is – how far will consumers travel to get a better deal?

This core question is reflected in the approach of most current competition authorities in determining the extent of the geographic market definition in respect of road and other fuels (in addition to many other retail markets involving "bricks and mortar" shopping, such as grocery retail markets). It is common for authorities to consider that, for most private consumers, the demand for road and other fuels from retail stations has strong regional-local aspects, determined by the geographic regions where the consumer lives and works, and by the principal traffic routes that connect these regions: this is the broad approach taken by the United States Federal Trade Commission, the United Kingdom Competition and Markets Authority, the Australian Competition and Consumer Commission, among others, and it is the approach followed in this Market Definition Report.

Following this approach, one can therefore say that competition for retail consumers takes place in local markets; as a result, the price-setting by individual retailers is significantly determined by the conditions of competition in their local markets. Consumers usually have a preference for purchasing fuel within a limited geographic area, normally around their home, work, or along their usual commute. Consumers may have a limited willingness to travel more than a certain distance drive from their usual commute or location in order to purchase fuel from another fuel retailer.

The information used in the assessment of geographic market definitions in this report includes the following, in line with broadly accepted principles of geographic market definition as outlined in Section 3 above:

- Information from market participants to identify and assess the strength of substitution possibilities.
- The costs to consumers of obtaining supply from alternative regions (to the extent available).
- Any limitations on the ability of customers to access sources of supply in alternative regions.

- Evidence of buyers switching to other products in response to price increases in the recent past.
- Relative price levels and price movements of the product compared to potential different geographic sources of supply.
- The portability of the relevant product as determined by its perishability, weight, etc.
- Transportation costs to move the relevant product between regions (particularly the transportation costs as a proportion of total value of the product)
- Any regulatory or other practical constraints on consumers buying from alternative regions.
- Any regulatory or other practical constraints on suppliers selling to alternative regions.
- Records relating to trade flows and the actual movement of customers and/or suppliers between geographic regions, especially related to changes in relative prices across regions in the recent past.
- The extent to which "chains of substitution" brought about by overlapping catchment areas may affect the geographic market definition.

5.2 The Three Islands

The Cayman Islands is comprised of three different islands: Grand Cayman, Cayman Brac, and Little Cayman, each separated by long stretches of water, without bridge connections between any of the islands. This geographic reality means that transport between the islands is realistically limited to barge and other marine vessels transportation for heavy items, or air transport for passengers and light goods.

This seemingly simple observation has powerful and essentially conclusive implications for the geographic market definition. As already outlined, the core test of geographic market definition is whether consumers would (and by implication, whether they *can*) travel to alternative locations to shop if the local price of a product increase slightly by a SSNIP. In the case of the three islands of the Cayman Islands they cannot. Factors to consider in geographic market definition include whether there are any regulatory and other practical constraints on consumers buying from alternative regions, the portability of the product in question, and transportation costs of moving the product between different locations.

In this case, the overwhelming reality is that consumers in Cayman Brac cannot drive to Grand Cayman to refill their cars, or similarly drive between any of the islands. The only realistic way to obtain fuel for a road vehicle from a retail station on another island is to transport one's vehicle to the other island by barge, or to have a tank of fuel brought from the other island on the customer's individual account. It is therefore evident without further analysis that, in the ordinary case, such a process would be prohibitively complex and expensive, relative to the price of fuel and the increased cost to the customer of a small increase (by a SSNIP) in that cost. In terms of the factors to be considered, one can conclude that (1) there are very significant practical constraints on consumers buying their retail fuel from another island, (2) retail fuels are not readily portable between islands from the consumers' perspective, and (3) the transport costs

of doing so would be prohibitively expensive relative to the cost of absorbing a SSNIP in the fuel price in the consumers' relative locations.

Similar considerations would apply in relation to non-vehicle fuels (such as cooking gases) and wholesale/bulk sales of fuels. While the precise calculus of inter-island shipping costs and complications would be slightly different in relation to each different product, and would depend to a material extent on the quantity of the fuel to be shipped between the islands, one can nonetheless conclude that in each case there are significant practical constraints on switching one's supply to a source on another island, consumers buying their retail fuel from another island, fuels are not readily portable between islands from the buyer's perspective, and the transport costs are highly material.

There are two potential exceptions to these island-based geographic markets which may have wider geographic markets: gasoline and other fuels used for marine purposes, and aircraft fuels including both aviation jet fuel (also known as jet fuel or avjet) and aviation gasoline (also known as avgas).

Marine vessels using gasoline are distinguishable from gasoline-fueled road vehicles as they are in principle capable of cost-effective travel to another island to obtain fuel; the same absolute geographic constraints applying to road vehicles therefore do not apply to marine vessels. However, for reasons outlined in Section 4.3.1 above, the special difficulties of marine engines in tolerating ethanol-blended gasoline to not prevent the defined product market for gasoline from including ethanol blends up to the blend wall, because sufficient proportions of other consumers *are* able to switch to ethanol-blended gasoline. By a similar but inverse process of reasoning, we note that, while some gasoline consumers would be readily willing to switch supply location to another island in the face of a SSNIP price rise, the substantial majority of gasoline customers would *not* be able to do so because the majority of gasoline sales in the Cayman Islands are for road vehicle use. This means that the number of customers willing to switch locations would therefore not be enough to "defeat" the SSNIP price rise, meaning that different islands should not be included in the same geographic market. As a result, we conclude that the geographic market for gasoline and all other road fuels is confined to individual islands, notwithstanding any marine use of those fuels.

Jet fuel is currently commercially available principally on Grand Cayman at Owen Roberts International Airport, with smaller volumes also being supplied on Cayman Brac at Sir Captain Charles Kirkconnell International Airport. Avgas is currently commercially available only on Grand Cayman at Owen Roberts International Airport. However, there is strong evidence from market participants that a substantial proportion of customers of jet fuel is highly sensitive to price differences between different fueling locations, and routinely do choose among different airport locations for refuelling by partial reference to the price of jet fuel. This price sensitivity and the customers' *ability* to displace themselves to other island locations points in favour of a Cayman Islands-wide geographic market for jet fuel. In respect of aviation gas, while we do not have strong evidence of such routine substitution between airports for refueling by avgas customers, they are nevertheless inherently mobile between islands and currently refuel principally on Grand Cayman. That jet fuel is currently principally available on Grand Cayman and to a lesser extent on Cayman Brac, and avgas is only available on Grand Cayman, will be considered in the Market Assessment Report; for the specific

purposes of market definition, there appears to be no strong reason to segment the Cayman Islands into the individual islands, and accordingly we conclude that the geographic market for aviation fuels (jet fuel and avgas) is the entire Cayman Islands.

One can therefore conclude with confidence that, with the exception of the aviation fuels (jet fuel and aviation gas) for which the geographic market should be defined as Cayman Islands-wide, the three different islands of Grand Cayman, Cayman Brac, and Little Cayman each constitutes a separate geographic market for all fuels under consideration in the Fuel Sector.

5.3 Geographic markets within each island

Having determined that there are clear geographic market boundaries between the three islands, one must then consider whether each of the islands should be further segmented into different geographic locations. As explained above, fuels markets are strongly characterised by regional-local market considerations, as determined by consumers' willingness (or unwillingness) to travel to alternative locations to purchase their fuel needs.

The following geographic market definitions are based on currently observed consumer behaviour and prices and their interaction with the physical geography of the Cayman Islands. However, should the relevant information change in the future as a result of changes in consumer behaviour, material changes in the relevant fuels supply chains, or other significant changes in or affecting the Fuel Sector, then it may be appropriate for the geographic market definition to be re-assessed and potentially changed in light of the changed circumstances.

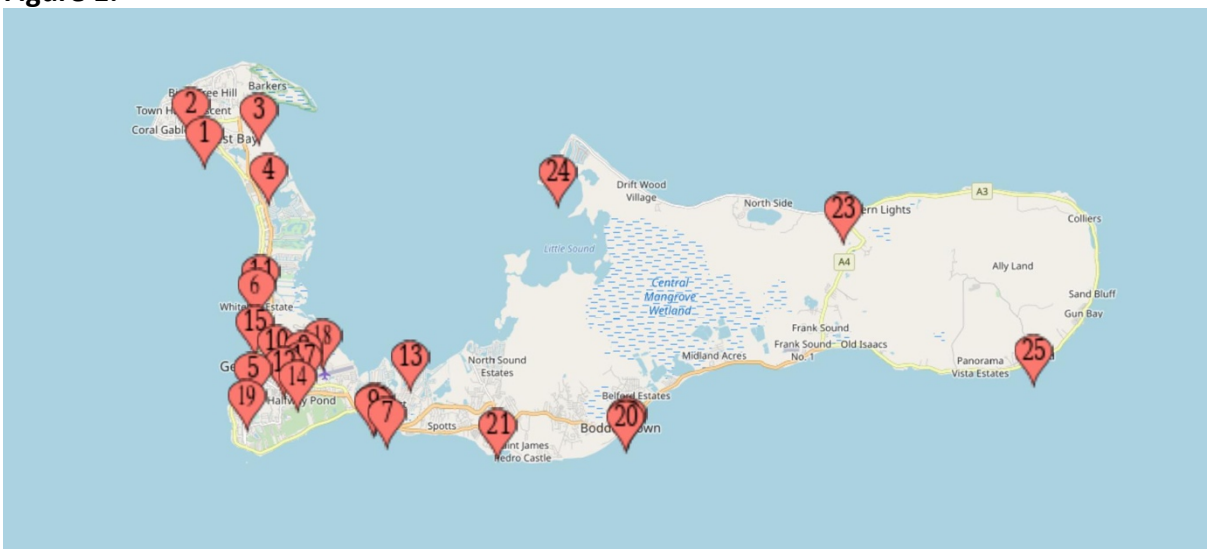
5.3.1 Grand Cayman

Grand Cayman is approximately 22 Miles (35 kilometers) long, and at its widest point is around 8 Miles (13 kilometers wide). Moreover, driving distances are such that the road distance between the most distant points are even longer: the driving distance from West Bay to Rum Point is around 31 Miles (50 kilometers), and the driving distance from West Bay to East End is around 28 Miles (45 kilometers).

The island is therefore sufficiently large to be capable of constituting several separate geographic markets for retail fuels consumers. For instance, a driving distance of 50 kilometers would generally be considered too long for consumers to readily switch to the alternative location to purchase their fuels, and may justify separate geographic markets.

However, these distances are the distances between the extreme ends of the potential geographic market(s), and there are a large number of retail stations in between the extreme ends. Excluding marinas, there are 20 retail stations spread throughout Grand Cayman, most tightly concentrated in George Town with 13 stations, but also including 2 stations in West Bay, 3 stations in Bodden Town, 1 station in North Side, and 1 station in East End. In addition, there are 5 marinas that also sell road fuels, of which 2 are in West Bay, 2 are in George Town, and 1 is in North Side. The distribution of the stations across Grand Cayman is shown in Figure 1 below:

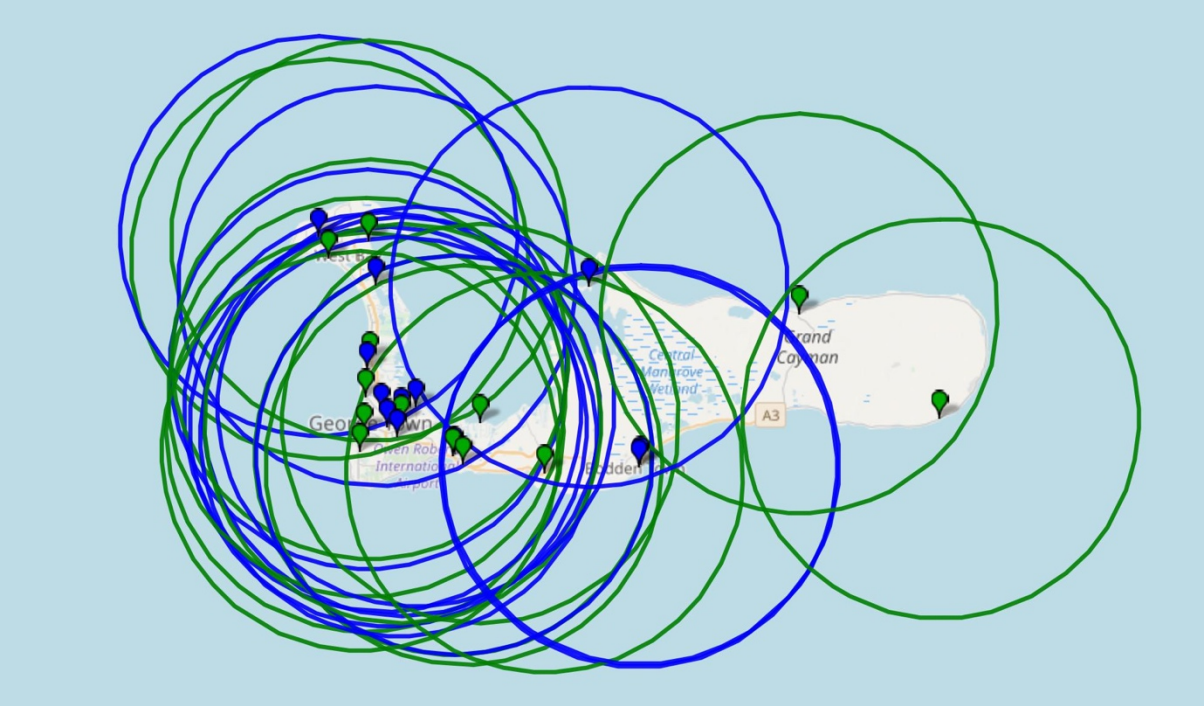
Figure 1:



This map shows the geographic distribution of service across Grand Cayman. As a general principle, the most relevant retail stations to a consumer will (everything else being equal) be the stations geographically closest to that consumer – and for a consumer considering an alternative station because the local price has increased by as SSNIP, the most relevant alternative will often be the next-closest station. It is the closest alternatives, as importantly influenced by the distance of the nearest alternative and taking into account factors relevant to the consumer including traffic, the road network, and other relevant factors, that exercise the closest and tightest competitive constraints on each station's pricing behaviour.

One can take this analysis an important step further by analysing the typical "catchment" areas as regards the customers of each of these stations and how they interact with each other. The Firm sought different types of more granular information on customer movements within Grand Cayman, specifically to establish how far customers will travel on Grand Cayman to purchase their fuel – the information sought included any information on customer work and residential locations relative to station locations, as potentially gleaned from customer accounts, customer loyalty programs, and similar sources of information. Unfortunately, due to the common practices in the Fuel Sector, these types of information were not available. Nevertheless, one can look to experience elsewhere to estimate broadly that, for each station, a large majority of road fuels customers will live or work within 15 kilometers of the station. Figure 2 shows these retail customer catchment areas for the different stations on a map of Grand Cayman. 10 kilometer radiuses shown around each station to provide a highly conservative view of the geographic market definition; with 15 kilometer radiuses, the overlaps are shown to be even stronger and the conclusion regarding geographic market definition even clearer

Figure 2:



This analysis shows that Grand Cayman is essentially covered by a network of station catchment areas that overlap strongly with one another. This creates strong chains of substitution across the whole of Grand Cayman which suggests that competitive conditions in different parts of Grand Cayman are all interrelated to one another and cannot systematically differ from one another across the different parts of Grand Cayman, because of this chain of competitive links across the island. Such a strong chain of substitution across the island would point to competitive conditions being broadly similar across the island. This similarity of competitive conditions in turn would point towards a conclusion that Grand Cayman is one geographic market for retail road fuels.

To illustrate this, consider a station at one end of the network, at the far end of West Bay. This station is likely too far from a station in Rum Point for those stations to competitively constrain each other, and so if these two stations were the only stations, they would not be in the same geographic market. However, the station at the far end of West Bay is constrained by any other station in northern West Bay. It is also constrained by any other stations in southern West Bay; the station in southern West Bay in turn is constrained by stations along West Bay Road; those stations in turn are constrained by stations in George Town; those stations in turn constrain stations in Bodden Town; and so on all the way to Rum Point and East End. If the links along this chain are sufficiently strong and continuous, this chain results in the geographic market being defined as a single market, even if the respective ends of the chain do not directly compete with one another. In this case, the overlaps between the different catchment areas along the chain are strong and continuous, because the stations are close enough to each other and well distributed across the chain. This strongly suggests the conclusion of a single geographic market for retail road fuels.

To test this conclusion, we have employed another market definition technique known as “correlation analysis”. Simply put, one can measure how closely different data series are related to each other by a measure of correlation, where the measure of correlation

is in a range from one (1) to negative (-1). Data series are closely correlated if they have a correlation measure towards one (1); data series that are closely related but in an inverse way have a correlation measure towards negative one (-1); and data series that are not closely related to each other have lower correlation measures towards zero (0). In terms of market definition, one generally expects that if products or locations are in the same market, then the prices of alternative products or locations in that market will be closely correlated, but if they are not in the same market, then their prices would be less closely related. A high correlation measure is therefore evidence of being in the same market, and a low correlation measure is therefore evidence of not being in the same market.

A correlation analysis was conducted on gasoline prices at all the different stations in Grand Cayman, including the marinas selling gasoline. To ensure comparability (so that apples are compared to apples and not to oranges), this correlation analysis was conducted using two separate specific products: (1) the prices of regular gasoline (89 octane) with pump self-service, and (2) the prices of premium gasoline (93 octane) with full pump service.

The detailed results of this correlation analysis are shown in a table in Appendix 1 (below). In summary, these results show that prices of the specific products are closely related to one another across the whole of Grand Cayman. This suggests that the different geographic areas of Grand Cayman are all part of the same geographic market for the purposes of market definition. These results are not conclusive by themselves, and must be caveated by the statement that correlation does not prove causation, and that prices are also likely to be substantially caused by independent factors including critically the world crude oil price. However, in combination with the other factors to be considered, it adds additional weight to the conclusion that there is a single geographic market covering the entirety of Grand Cayman.

We therefore conclude that in respect of the retail sales of road fuels, the entire island of Grand Cayman constitutes one sphere of competition, and therefore one geographic market.

By contrast, the geographic market in relation to the wholesale/bulk sector is relatively straight-forward to define. For bulk fuels, there are effectively only two source points: the bulk entry point by pipeline at Jackson Point, and the container port in George Town for the importation of fuels by way of ISO containers. Similarly, large scale storage facilities are relatively concentrated around the George Town and Jackson Point region. All bulk and wholesale fuels around Grand Cayman ultimately originate from this region of the island. As a result, there is no basis for segmenting the island's wholesale/bulk industry level more finely than being island-wide.

We therefore conclude that in respect of wholesale / bulk sales of fuels on Grand Cayman, the entire island of Grand Cayman constitutes one sphere of competition, and therefore one geographic market.

The geographic markets relating to retail non-vehicle fuels (such as propane and comparable home-use gases) are similarly relatively straightforward to define. For retail home-use fuels, information from market participants suggests that a sufficient number of consumers on the individual islands obtains home-based delivery of products at island-wide rates meaning that the consumers do not distinguish between

different origin locations. Similarly, market suppliers do not classify customers by location other than to distinguish between Grand Cayman and the Sister Islands; nevertheless, for comparable reasons outlined in respect of other fuels, a consumer of home non-vehicle fuels (e.g. propane) based in one of the Sister Islands would be unlikely to travel to the other Sister Island to obtain the same fuel as a result of a SSNIP price rise. The evidence therefore suggests that the geographic market for the retailing of non-vehicle fuels including propane is the entire island of Grand Cayman.

5.3.2 Cayman Brac

Cayman Brac is about 12 miles (19 kilometers) long and on average around 1.2 miles (2 kilometers) wide.

There are two retail stations on Cayman Brac, and similar to Grand Cayman, Cayman Brac has one ship to shore pipeline for bulk fuel and the Port where international tankers and barges can land to also bring various fuel supplies (inclusive of aviation fuel and propane) in smaller quantities. The bulk diesel mainly used for the purposes of electricity generation.

The dimensions of the island and fuels supply characteristics of the island suggest that there is no reason to further segment Cayman Brac into different geographic markets. Moreover, there is no information at hand to suggest that the conditions of competition are materially different on different parts of the island – vehicle owners on all different parts of the island travel to the same retail stations to purchase their fuel.

It is therefore likely that the entire island of Cayman Brac constitutes one sphere of competition, and therefore one geographic market at both retail and bulk wholesale levels.

5.3.3 Little Cayman

Little Cayman is about 10 miles (16 kilometers) long and around 1.2 mile (2 kilometers) wide.

There is one retail station on Little Cayman, more generally one shopping location with one store, and effectively one place where barges can land to bring fuel supplies in smaller quantities.

The dimensions of the island and fuels supply characteristics of the island suggest that there is no reason to further segment Little Cayman into different geographic markets. Moreover, there is no information at hand to suggest that the conditions of competition are materially different on different parts of the island – vehicle owners on all different parts of the island travel to the same retail station to purchase their fuel.

It is therefore likely that the entire island of Little Cayman constitutes one sphere of competition, and therefore one geographic market.

5.4 Other Potential Future Fuels

The fuels for which markets are defined in this Report are those currently in use in the Fuel Sector or which may realistically come into use in the foreseeable future. In addition to these fuels, there are other fuels that are not currently in the foreseeable fuels mix for the Cayman Islands. Nevertheless, there may be a sufficient change in markets, consumer demand, and technology which would introduce such new fuels into the potential fuels mix in the Fuel Sector, as is also outlined in Section 4.3.14 above in connection with the product market definition. Should these or other new fuels be introduced in the future, then there may be a need and justification for markets to be defined by OfReg for such new fuels. Such a market definition process including the geographic dimension of the product market would broadly follow the same analytical approaches as are used in this Market Definition Report and would be based on comparable considerations, which may include a similar public consultation process.

6 APPENDIX 1: CORRELATION ANALYSIS, GRAND CAYMAN

Table 1: Correlation of retail stations selling self-service regular gasoline

	E1	B2	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G15
E1	1.00															
B2	0.97	1.00														
G1	0.91	0.88	1.00													
G2	0.92	0.90	0.98	1.00												
G3	0.91	0.88	0.99	0.99	1.00											
G4	0.92	0.90	0.99	1.00	0.99	1.00										
G5	0.93	0.90	0.98	0.98	0.98	0.98	1.00									
G6	0.93	0.93	0.94	0.96	0.95	0.96	0.97	1.00								
G7	0.91	0.92	0.94	0.95	0.93	0.95	0.96	0.98	1.00							
G8	0.96	0.96	0.88	0.90	0.88	0.90	0.91	0.93	0.92	1.00						
G9	0.94	0.97	0.94	0.87	0.83	0.87	0.88	0.92	0.91	0.95	1.00					
G10	0.97	0.92	0.86	0.87	0.85	0.87	0.87	0.88	0.86	0.89	0.90	1.00				
G11	0.98	0.97	0.92	0.93	0.91	0.93	0.94	0.94	0.93	0.96	0.96	0.92	1.00			
G12	0.94	0.96	0.83	0.86	0.82	0.86	0.87	0.92	0.91	0.94	0.98	0.88	0.96	1.00		
G13	0.15	0.10	0.02	0.07	-0.06	0.07	0.15	0.07	0.17	0.31	0.24	0.07	0.08	0.28	1.00	
G15	0.81	0.77	0.88	0.88	0.88	0.88	0.87	0.88	0.89	0.79	0.74	0.85	0.83	0.74	0.25	1.00

Legend:

E1 = station in East End offering self-service regular gasoline.

B2 = station in Bodden Town offering self-service regular gasoline.

G1 = station in George Town offering self-service regular gasoline.

G2 = station in George Town offering self-service regular gasoline.

G3 = station in George Town offering self-service regular gasoline.

G4 = station in George Town offering self-service regular gasoline.

G5 = station in George Town offering self-service regular gasoline.

G6 = station in George Town offering self-service regular gasoline.

G7 = station in George Town offering self-service regular gasoline.

G8 = station in George Town offering self-service regular gasoline.

G9 = station in George Town offering self-service regular gasoline.

G10 = station in George Town offering self-service regular gasoline.

G11 = station in George Town offering self-service regular gasoline.

G12 = station in George Town offering self-service regular gasoline.

G13 = station in George Town offering self-service regular gasoline.

G15 = station in George Town offering self-service regular gasoline.

Table 2: Correlation of retail stations selling full-pump premium gasoline

	WB1	WB2	WB3	WB4	BT1	BT2	BT3	NS1	GT1	GT2	GT3	GT4	GT5	GT6
WB1	1.00													
WB2	0.68	1.00												
WB3	0.84	0.82	1.00											
WB4	0.12	0.89	0.54	1.00										
BT1	0.65	0.97	0.78	0.86	1.00									
BT2	0.70	0.93	0.83	0.88	0.92	1.00								
BT3	0.66	0.94	0.80	0.85	0.93	0.96	1.00							
NS1	0.77	0.85	0.82	0.81	0.83	0.86	0.81	1.00						
GT1	0.67	0.98	0.82	0.88	0.98	0.93	0.94	0.84	1.00					
GT2	0.65	0.98	0.81	0.88	0.98	0.93	0.94	0.84	0.99	1.00				
GT3	0.66	0.98	0.81	0.88	0.98	0.93	0.95	0.84	0.99	1.00	1.00			
GT4	0.65	0.98	0.81	0.88	0.98	0.93	0.94	0.84	0.99	1.00	1.00	1.00		
GT5	0.61	0.95	0.81	0.86	0.94	0.89	0.89	0.84	0.94	0.95	0.94	0.95	1.00	
GT6	0.69	0.97	0.80	0.87	0.97	0.93	0.93	0.85	0.97	0.97	0.97	0.97	0.93	1.00
GT7	0.70	0.98	0.83	0.89	0.97	0.95	0.94	0.86	0.97	0.97	0.97	0.97	0.95	0.99
GT8	0.70	0.93	0.82	0.90	0.92	0.96	0.96	0.85	0.93	0.92	0.93	0.92	0.88	0.93
GT9	0.75	0.92	0.85	0.83	0.91	0.96	0.96	0.83	0.93	0.91	0.93	0.91	0.86	0.92
GT10	0.67	0.92	0.80	0.87	0.91	0.99	0.95	0.84	0.91	0.92	0.92	0.92	0.88	0.93
GT11	0.69	0.95	0.83	0.88	0.94	0.99	0.97	0.87	0.95	0.95	0.95	0.95	0.91	0.95
GT12	0.76	0.92	0.86	0.81	0.92	0.95	0.96	0.85	0.4	0.92	0.94	0.92	0.87	0.93
GT13	0.30	0.90	0.47	0.86	0.87	0.98	0.97	0.63	0.91	0.90	0.91	0.90	0.78	0.88
GT14	0.71	0.92	0.84	0.89	0.91	0.95	0.95	0.85	0.92	0.92	0.92	0.92	0.90	0.93
GT15	0.60	0.92	0.75	0.69	0.93	0.91	0.92	0.71	0.93	0.92	0.93	0.92	0.86	0.90

	GT7	GT8	GT9	GT10	GT11	GT12	GT13	GT14	GT15
GT7	1.00								
GT8	0.94	1.00							
GT9	0.93	0.95	1.00						
GT10	0.95	0.96	0.95	1.00					
GT11	0.96	0.97	0.96	0.98	1.00				
GT12	0.94	0.95	0.98	0.94	0.97	1.00			
GT13	0.90	0.99	0.97	0.97	0.98	0.97	1.00		
GT14	0.93	0.95	0.95	0.94	0.96	0.94	0.97	1.00	
GT15	0.91	0.89	0.91	0.90	0.92	0.93	0.88	0.88	1.00

Legend:

WB1 = station in West Bay offering full-pump premium gasoline.

WB2 = station in West Bay offering full-pump premium gasoline.

WB3 = station in West Bay offering full-pump premium gasoline.

WB4 = station in West Bay offering full-pump premium gasoline.

BT1 = station in Bodden Town offering full-pump premium gasoline.

BT2 = station in Bodden Town offering full-pump premium gasoline.

BT3 = station in Bodden Town offering full-pump premium gasoline.

NS1 = station in North Side offering full-pump premium gasoline.

GT1 = station in George Town offering full-pump premium gasoline.

GT2 = station in George Town offering full-pump premium gasoline.

GT3 = station in George Town offering full-pump premium gasoline.

GT4 = station in George Town offering full-pump premium gasoline.

GT5 = station in George Town offering full-pump premium gasoline.

GT6 = station in George Town offering full-pump premium gasoline.

GT7 = station in George Town offering full-pump premium gasoline.

GT8 = station in George Town offering full-pump premium gasoline.

GT9 = station in George Town offering full-pump premium gasoline.

GT10 = station in George Town offering full-pump premium gasoline.

GT11 = station in George Town offering full-pump premium gasoline.

GT12 = station in George Town offering full-pump premium gasoline.

GT13 = station in George Town offering full-pump premium gasoline.

GT14 = station in George Town offering full-pump premium gasoline.

GT15 = station in George Town offering full-pump premium gasoline.