



**REGULATORY
AUTHORITY**
OF BERMUDA

Fairness • Innovation • Integrity

Integrated Resource Plan (IRP) Alternative Proposals Consultation

Consultation Document Matter:

20181002

Date: 2 October 2018

Responses Due: 30 November 2018

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I. INTRODUCTION

1. Pursuant to the Electricity Act 2016 (“EA”), the Regulatory Authority of Bermuda (the “Authority”) is responsible for regulation of the electricity sector in Bermuda and its overarching responsibilities are to:

- Regulate tariffs and the quality of service provision to end users;
- Ensure that access to the electricity infrastructure by current and prospective generators is transparent, fair, reasonable, and non-discriminatory; and
- Investigate and respond to issues from end users with regards to the provision of electricity.

2. Section 40(1) of the EA requires the Authority to request that the Transmission, Distribution and Retail Licensee (the “TD&R Licensee”) prepares an Integrated Resource Plan Proposal (“IRP Proposal”) within two years of the commencement of the EA.

3. On 17th November 2017, the Authority issued the Notice of Request for Integrated Resource Plan Proposal (the “Notice”), which required the TD&R Licensee to submit an IRP Proposal by 17th February 2018. The TD&R Licensee submitted its IRP Proposal to the Authority on 15th February 2018.

4. On 2nd May 2018, the Authority published a consultation (the “IRP Proposal Consultation”) seeking public feedback on the IRP Proposal submitted by the TD&R Licensee. The deadline for responses to the IRP Proposal Consultation was extended by Ministerial consent to 17th August 2018 (the “Deadline”).

5. In accordance with section 42(2) of the EA, the IRP Proposal Consultation also requested submissions of proposals for bulk generation or demand side resources (“Alternative Proposals”).

6. The Authority received eight Alternative Proposals by the Deadline, primarily focused on bulk generation.

7. Section 43(a) of the EA requires the Authority to hold at least one public consultation for each Alternative Proposal received before the Deadline, whether alone or with other Alternative Proposals.

8. The purpose of this Consultation Document is to seek public feedback on the eight Alternative Proposals.

II. CONSULTATION PROCEDURE

9. This consultation is being undertaken in accordance with sections 69-73 of the Regulatory Authority Act 2011 ("RAA"). The procedure and accompanying timelines (as set out in Section 70 of the RAA), under which this consultation is taking place, are set out in this Section II.

10. Written comments should be submitted before 5:00 PM (Bermuda time) on 30th November 2018.

11. The Authority invites comments from members of the public, electricity sectoral participants and sectoral providers, and other interested parties. The Authority requests that commenting parties, in their responses, reference the numbers of the relevant questions, as set forth in this Consultation Document, to which they are responding. A complete list of questions presented by this Consultation Document appears in Section VII.

12. Responses to this Consultation Document should be filed electronically in MS Word or Adobe Acrobat format. Parties wishing to file comments should go to the Authority's website www.rab.bm and follow these links:

Consumer page for Public Consultations: <https://rab.bm/public-consultations>.

Sectors page for Public Consultations: <https://rab.bm/electricity-public-consultations/>

The screenshot shows a web browser window with the URL <https://rab.bm/submit-a-response-form/>. The page header features the Regulatory Authority of Bermuda logo and navigation links: HOME, ABOUT US, CONSUMERS, SECTORS, and CONTACT US. The main heading is "Submit a Response Form". Below this, there are input fields for "First Name", "Last Name", "Your Email", and "Company Name (if applicable)". A dropdown menu for "Consultation Name" is set to "Integrated Resource Plan (IRP) Proposal". A file upload section prompts the user to "Please upload any relevant file(s)" and includes a "Choose Files" button. A "SUBMIT" button is located at the bottom of the form. The footer contains the Regulatory Authority of Bermuda logo, a "Disclaimer" link, and contact information.

13. All comments should be clearly marked "Response to Consultation Document: Comments on IRP Bulk Generation Proposals" and should otherwise comply with Rules 18 and 30 of the Authority's [Interim Administrative Rules](#), which are posted on the Authority's website.

14. The Authority intends to make responses to this Consultation Document available on its website. If a commenting party's response contains any information that is confidential in nature, a clearly marked "Non-Confidential Version", redacted to delete the confidential information, should be provided, together with a complete version that is clearly marked as the "Confidential Version." Redactions should be strictly limited to "confidential information," meaning a trade secret, information whose commercial value would be diminished or destroyed by public disclosure, information whose disclosure would have an adverse effect on the commercial interests of the commenting party, or information that is legally subject to confidential treatment. The "Confidential Version" should highlight the information that has been redacted. Any person claiming confidentiality in respect of the information submitted must provide a full justification for the claim. Requests for confidentiality will be treated in the manner provided for in Rule 30 of the Authority's [Interim Administrative Rules](#).

15. In accordance with section 73 of the RAA, any interested person may make an *ex parte* communication during this consultation process, subject to the requirements set forth in this paragraph 15. An *ex parte* communication is defined as any communication to a Commissioner or member of staff of the Authority regarding the matter being consulted on in this Consultation Document, other than a written submission made pursuant to this Section II. Within 2 business days after making an *ex parte* communication, the person who made the *ex parte* communication shall submit the following to the Authority: (i) a written description of the issues discussed and positions espoused; and (ii) a copy of any written materials provided. This will be posted on the Authority's website, along with a notice of the *ex parte* communication.

16. The principal point of contact at the Authority for interested persons for this Consultation Document is Monique Lister. She may be contacted by email, referencing "Comments on IRP Bulk Generation Proposals Consultation", at electricity@RAB.bm, or by mail at:

Monique Lister
Regulatory Authority
1st Floor, Craig Appin House
8 Wesley Street
Hamilton, Bermuda

17. In this Consultation Document, except insofar as the context otherwise requires, words or expressions shall have the meaning assigned to them by the EA, the RAA and the Interpretation Act 1951.

18. This Consultation Document is not a binding legal document and does not contain legal, commercial, financial, technical or other advice. The Authority is not bound by this Consultation Document, nor does it necessarily set out the Authority's final or definitive position on particular matters. To the extent that there might be any inconsistency between

the contents of this Consultation Document and the due exercise by the Authority of its functions and powers, and the carrying out of its duties and the achievement of relevant objectives under law, such contents are without prejudice to the legal position of the Authority.

III. LEGISLATIVE CONTEXT

19. RAA established a cross-sectoral independent and accountable regulatory authority “to protect the rights of consumers, encourage the deployment of innovative and affordable services, promote sustainable competition, foster investment, promote Bermudian ownership and employment and enhance Bermuda’s position in the global market”.¹

20. In June 2015, the Ministry of Economic Development of Bermuda published the National Electricity Sector Policy (the “Policy Document”). The Policy Document set out the groundwork for the implementation of the subsequent EA and the desired structure of the Bermudian electricity sector.

21. The EA received Royal Assent on 27th February 2016. The EA came into operation on 28th October 2016 (the “Commencement Date”) pursuant to the Electricity Act 2016 Commencement Day Notice 2016 (BR 101/2016). The EA repealed the Energy Act 2009.

22. The Minister responsible for electricity is the Minister of Transport and Regulatory Affairs (the “Minister”). The Minister can issue Ministerial declarations to the Authority that establish policies for the electricity sector,² or regarding any matter within his or her authority as regards the electricity sector.³ In formulating Ministerial directions, the Minister shall set priorities and resolve tradeoffs or conflicts that arise from the purpose of the EA in a way that he thinks best serves the public interest.⁴

23. Section 14(1) of the EA provides that the function of the Authority is generally to monitor and regulate the electricity sector. The Authority has the powers to supervise, monitor and regulate the electricity sector in Bermuda in order to achieve the purposes of the EA.⁵ Such purposes, as set forth in section 6 of the EA, include:

- (a) to promote the adequacy, safety, sustainability and reliability of electricity supply in Bermuda so that Bermuda continues to be well positioned to compete in the international business and global tourism markets;
- (b) to encourage electricity conservation and the efficient use of electricity;
- (c) to promote the use of cleaner energy sources and technologies, including alternative energy sources and renewable energy sources;

¹ Regulatory Authority Act 2011, p. 5.

² Electricity Act 2016, Section 7(2).

³ Electricity Act 2016, Section 8(3).

⁴ Electricity Act 2016, Section 9.

⁵ Electricity Act 2016, Section 14(2)(a).

- (d) to provide sectoral participants and end-users with non-discriminatory interconnection to transmission and distribution systems;
 - (e) to protect the interests of end-users with respect to prices and affordability, and the adequacy, reliability and quality of electricity service;
 - (f) to promote economic efficiency and sustainability in the generation, transmission, distribution and sale of electricity.
24. The principal functions of the Authority set forth in section 12 of the RAA include:
- (a) to promote and preserve competition, section 12(a);
 - (b) to promote the interests of the residents and consumers of Bermuda, Section 12(b);
 - (c) to promote the development of the Bermudian economy, Bermudian employment and Bermudian ownership, section 12 (c); and
 - (d) to promote innovation, section 12(d).
25. In accordance with the Policy Document, the reformed electricity sector in Bermuda will introduce competition between existing generation facilities, prospective third-party bulk generators (i.e. independent power producers), distributed generators, and other demand side resources. In order to achieve greater efficiency while maintaining an appropriate level of overall system reliability, the costs and benefits of all competing resources and sectoral developments will need to be considered when developing future investments plans, to ensure that these plans are efficient. The TD&R Licensee is required to produce an IRP Proposal that contains a resource plan and a procurement plan specifically designed to address future sectoral demand.
26. Section 40 of the EA (i) requires the Authority to issue a notice requesting the IRP Proposal from the TD&R Licensee within 2 years of the Commencement Date of the EA; and (ii) sets forth the requirements for the notice, including requirements for the IRP Proposal.
27. Section 41 of the EA requires the IRP Proposal to (i) comply with the EA, any administrative determinations and the notice requesting the IRP Proposal; and (ii) contain the requirements set forth in section 40 of the EA.
28. After the Authority has received and accepted the IRP Proposal, section 42(1) of the EA requires the Authority to publish the IRP Proposal on its official website for review and comments by the public. The publication of the IRP Proposal, prepared by the TD&R Licensee, does not constitute an endorsement by the Authority of the IRP Proposal.
29. The Authority shall also request the submission of proposals for bulk generation or demand side resources pursuant to section 42(2) of the EA.

30. Section 42(3) of the EA requires each Alternative Proposal to demonstrate (i) how its inclusion in the IRP would result in an electricity supply that is more consistent with the purposes of the EA and Ministerial directions; and (ii) how it uses technology that is in commercial operation in another jurisdiction.

31. Section 43 of the EA requires the Authority to hold at least one public consultation for each Alternative Proposal received before the stipulated deadline and to hold meetings with the proponent of each Alternative Proposal, the TD&R Licensee and any other persons that the Authority considers relevant in order to assess the Alternative Proposals.

32. Section 44 of the EA requires the TD&R Licensee to prepare a final draft Integrated Resource Plan ("IRP") for the Authority's review and approval that takes the public comments and Alternative Proposals into consideration and implements the Authority's comments. Section 44 also sets forth the process for the Authority's approval of the IRP.

33. Section 45 of the EA requires the Authority to publish the approved IRP on its official website.

34. The remainder of the Consultation Document seeks public comments on the Alternative Proposals.

IV. BACKGROUND

35. An IRP is a plan that seeks to balance the future demand and supply of electricity. Broadly, the IRP's purpose is to set out the strategy for the procurement and retirement of generation assets as well as demand side resources that meets the needs of consumers in a cost efficient manner that is also consistent with Bermuda's energy policy objectives.

36. Accordingly, this plan should incorporate the latest evidence on the costs and technical characteristics of different generation and load management technologies in order to evaluate the least-cost capacity expansion plan for the electricity market of Bermuda. The plan should include both a resource plan—including a forecast of expected demand and the state of the existing generation resources—and a procurement plan, which details how the TD&R Licensee proposes to meet the expected demand.

37. The Authority issued the Notice on 17th November 2017, which required the TD&R Licensee to submit an IRP Proposal by 17th February 2018. The Notice required the IRP Proposal to cover a period of three years from the date of the approved IRP (the "IRP Period").

38. On 6th December 2017, the Authority issued an Order setting out Integrated Resource Plan Guidelines (the "Guidelines Order") to provide guidance on the development of the IRP Proposal to the TD&R Licensee.

39. The TD&R Licensee submitted its IRP Proposal to the Authority on 15th February 2018.

40. On 2nd May 2018, the Authority issued the IRP Proposal Consultation seeking public comment on the IRP Proposal and requesting submissions of Alternative Proposals.

41. In response to requests for further guidance from potential sectoral participants, the Authority issued Bulk Generation Proposal Guidelines on 22nd June 2018.

42. The Authority received eight submissions of Alternative Proposals before the deadline of 17th August 2018.

43. In this Consultation Document, the Authority seeks comments from the public on the Alternative Proposals.

V. ALTERNATIVE PROPOSALS

44. This section provides information on the Alternative Proposals received and outlines the process for public consultation on Alternative Proposals.

45. The Authority received eight Alternative Proposals utilizing a variety of technologies, including liquid natural gas (“LNG”), solar energy, and wave energy. These Alternative Proposals are set forth in Appendices A to G of this Consultation Document.

46. The Alternative Proposals can be summarized as follows:

- (a) BCM McAlpine and Bouygues Energies & Services submitted a proposal to build a 20 MW power plant at Ships Wharf using a variety of technologies;
- (b) Bermuda Engineering Company Limited (BE Solar) submitted a proposal that considered both bulk generation and demand side resources, as well as distributed generation, resulting in a proposed increase in generation using renewable energy sources;
- (c) Bermuda Environment Energy Solutions Group, Louis Berger Power and Corcon Ltd submitted a proposal to build a 56.2 MW power plant with a LNG/heavy fuel oil (HFO) dual fuel configuration at Ships Wharf;
- (d) Bermuda General Agency Limited submitted a proposal to build a wave energy park; multiple sites have been identified for a potential 20 MW park;
- (e) Brad Sorenson submitted a proposal to build up to 200 MW of generation capacity (clean water and power);
- (f) Enviva and Albioma submitted a proposal to build 47MW of biomass based generating capacity;
- (g) Offshore Utilities submitted a proposal to develop a floating storage, regasification and power generation unit producing up to 100 MW of power through Liquefied Natural Gas (LNG); and
- (h) Sol Petroleum Bermuda Limited submitted a proposal for a dual fuel 18.4 MW or 55.2 MW power plant and LNG terminal at the Ferry Reach Marine Storage Terminal.

47. The Authority invites interested parties to provide their views on whether (i) including the Alternative Proposals in the IRP would result in an electricity supply that is more consistent with the purposes of the EA and Ministerial directions (e.g. least-cost provision of reliable electricity); and (ii) the Alternative Proposals use technology that is in commercial operation in another jurisdiction; as well as any other aspect of the assumptions, assessment methodology, and conclusions set out in the Alternative Proposals.

Consultation questions

1. Are there any provisions in the Alternative Proposals that should be modified? Please include any reasoning and evidence in your answers.
 2. Do you have any comments on whether including the Alternative Proposals in the IRP would result in an electricity supply that is more consistent with the purposes of the EA and Ministerial directions (e.g. least-cost provision of reliable electricity)?
 3. Do you have any comments on the technology proposed in the Alternative Proposals, including whether such technology is in commercial operation in another jurisdiction?
 4. Do you have any additional views on the assumptions, assessment methodology, and conclusions set out in the Alternative Proposals?
-

VI. NEXT STEPS

48. The Authority will, concurrent with this consultation, hold as many meetings as it deems necessary with the proponent of each Alternative Proposal, the TD&R Licensee and any other persons that the Authority considers relevant in order to assess the Alternative Proposals.

49. The Authority will undertake further analysis of the Alternative Proposals in order to determine whether inclusion of any of the Alternative Proposals in the IRP would be likely to result in an electricity supply that is more consistent with the purposes of EA and Ministerial directions (e.g. least-cost provision of reliable electricity).

50. Based on the Authority's assessment of the Alternative Proposals and the responses to this Consultation Document, the Authority may request that the TD&R Licensee incorporate information obtained from the Alternative Proposals in the draft version of the final IRP ("Draft IRP"). The Authority may also request additional information from the proponents of the Alternative Proposals in order to analyse the effects of the inclusion of Alternative Proposals in the Draft IRP.

51. In addition, based on its own assessment and the responses to the IRP Proposal consultation, the Authority will provide guidance to the TD&R Licensee, in relation to issues that are to be addressed in the subsequent development of the Draft IRP.

52. The Authority may direct the TD&R Licensee to use the Alternative Proposals in the following ways:

- (a) to consider alternative scenarios in the Draft IRP based on the use of generation technologies, outlined in the Alternative Proposals, which have not been considered in the IRP Proposal;
- (b) to benchmark the cost assumptions of the generation technologies considered in the IRP Proposal;
- (c) to provide information for future procurement of alternative bulk generation or demand side resources.

53. The Authority notes that, according to the IRP Proposal, limited additional generation capacity is required until at least 2021. Therefore, option (c) is unlikely to materialise in the short term. Where additional generation capacity is required, it will be procured in accordance with section 46(1) of the EA.

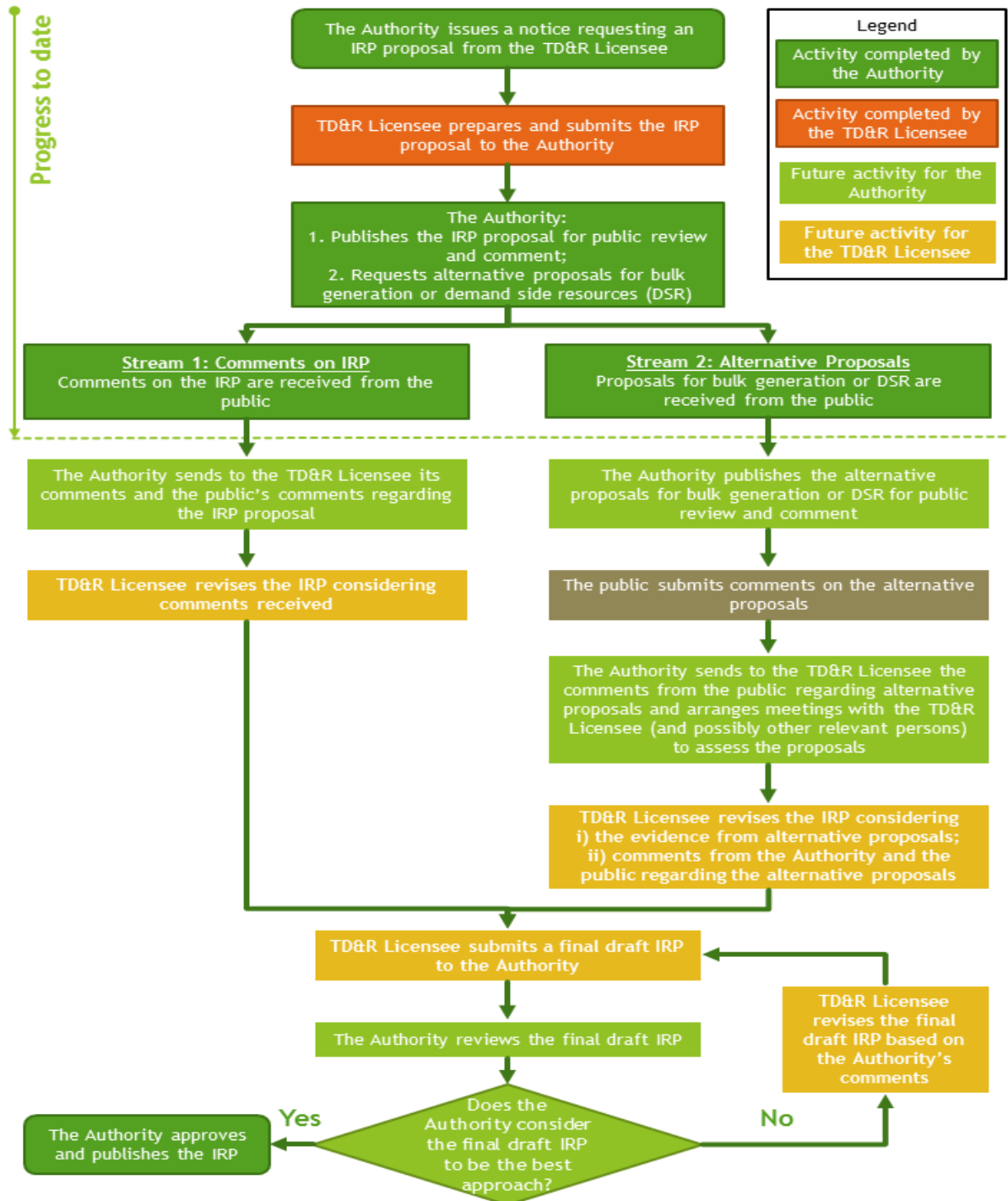
54. The TD&R Licensee will then prepare the Draft IRP for the review and approval of the Authority. The Draft IRP will take any public comments and Alternative Proposals into consideration and will implement any comments of the Authority.

55. The Authority will review the Draft IRP and may approve it if, acting in accordance with regulatory principles and any administrative determinations, the Authority considers the Draft IRP to be the best approach to meeting the purposes of the EA and complying with any Ministerial directions. This may be an iterative process, as the Authority may require the TD&R Licensee to modify the Draft IRP until it is in a form that can meet the Authority's approval.

56. The Authority will then publish the approved IRP on its official website.

57. The process for the IRP, as described in Part 8 of the EA, is summarised in the Figure 1 below.

Figure 1



VII. CONSULTATION QUESTIONS

58. Interested parties are invited to comment on the Alternative Proposals, in particular in relation to the following questions:

Consultation questions

1. Are there any provisions in the Alternative Proposals that should be modified? Please include any reasoning and evidence in your answers.
 2. Do you have any comments on whether including the Alternative Proposals in the IRP would result in an electricity supply that is more consistent with the purposes of the EA and Ministerial directions (e.g. least-cost provision of reliable electricity)?
 3. Do you have any comments on the technology proposed in the Alternative Proposals, including whether such technology is in commercial operation in another jurisdiction?
 1. Do you have any additional views on the assumptions, assessment methodology, and conclusions set out in the Alternative Proposals?
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APPENDIX A

APPENDIX A: BCM MCALPINE AND BOUYGUES ENERGIES & SERVICES

The link below sets forth the Alternative Proposal submitted by BCM McAlpine and Bouygues Energies & Services.

[BCM McAlpine Alternative Proposal](#)

APPENDIX B

APPENDIX B: BERMUDA ENGINEERING COMPANY LIMITED (BE SOLAR)

The link below sets forth the Alternative Proposal submitted by Bermuda Engineering Company Limited (BE Solar).

[BE Solar Alternative Proposal](#)

APPENDIX C

APPENDIX C: BERMUDA ENVIRONMENT ENERGY SOLUTIONS GROUP

The link below sets forth the Alternative Proposal submitted by Bermuda Environment Energy Solutions Group, Louis Berger Power and Corcon Ltd.

[BEESG Alternative Proposal](#)

APPENDIX D

APPENDIX D: BERMUDA GENERAL AGENCY LIMITED

The link below sets forth the Alternative Proposal submitted by Bermuda General Agency Limited.

[BGA Alternative Proposal](#)

APPENDIX E

APPENDIX E: BRAD SORENSON

The link below sets forth the Alternative Proposal submitted by Brad Sorenson.

[Brad Sorenson Alternative Proposal](#)

APPENDIX F

APPENDIX F: ENVIVA AND ALBIOMA

The link below sets forth the Alternative Proposal submitted by Enviva and Albioma.

[Enviva Alternative Proposal](#)

APPENDIX G

APPENDIX G: OFFSHORE UTILITIES

The links below set forth the Alternative Proposal submitted by Offshore Utilities.

[Offshore Utilities Proposal Part 1](#) [Offshore Utilities Proposal Part 2](#)

APPENDIX H

APPENDIX H: SOL PETROLEUM BERMUDA LIMITED

The link below sets forth the Alternative Proposal submitted by Sol Petroleum Bermuda Limited).

[Sol Alternative Proposal](#)