REGULATORY AUTHORITY OF BERMUDA

Preliminary Report on the Electricity Sectoral Review

Preliminary Report and
Preliminary Recommendations
Matter Number: 20191028
Date: 27 April 2020
Responses Due: 2 June 2020

TABLE OF CONTENTS

I. DEFINITIONS

BELCO: means the Bermuda Electric Light Company Limited.

Bulk generation ("BG"): means the generation of electricity using a system with an installed capacity at or above the Licence Threshold.

Distributed generation ("DG"): means generation using a system with an installed capacity below the licence threshold of 500kW.

Demand-side management ("DSM"): means all activities or programs undertaken by any person to influence the amount of electricity or timing of electricity they use.

Demand-side response ("DSR"): means any actions consumers to reduce or shift their energy consumption in response to initiatives or signals.

Electricity distribution: means conveying electric power below 22 kilovolts (kV).

Electricity transmission: means conveying power at or above 22 kilovolts (kV).

Electric vehicle ("EV"): means a vehicle which uses an electric motor that is powered by electricity from batteries, fuel cells or overhead cables.

Feed-in tariff ("FIT"): means the pre-determined rate at which renewable energy is purchased by the TD&R Licensee from a distributed generator, for a predetermined period, and under pre-determined conditions in accordance with Part 6 of the Electricity Act 2016.

Independent Power Producer ("IPP"): means an entity that provides energy, capacity, and ancillary services for commercial purposes at a bulk scale to the TD&R licensee under long-term contracts that have been secured through the IRP process.[1]

Integrated resource plan ("IRP"): means an energy plan for the supply of electricity in Bermuda approved by the Authority in accordance with, and set out in the matters required by, Part 8 of the Electricity Act 2016.

Kilowatt ("kW"): means a unit of electrical power equal to one thousand watts.

Megawatt ("MW"): means a unit of electrical power equal to one million watts.

[1] The National Electricity Sector Policy of Bermuda

Peer-to-peer electricity trading ("P2P"): means a process that allows producers and consumers to trade electricity directly among themselves rather than selling to or buying from the grid (the TD&R Licensee).

Reserve margin: means the amount of unused available capability of an electric power system (at peak load for a utility system) as a percentage of total capability.[2]

Smart grid: means "an electricity supply network that uses digital communications technology to detect and react to local changes in usage".[3]

Solar irradiation: means an electric power unit per area received from the Sun.

Vehicle-to-grid: means services which enable the electricity stored in EVs to be fed back to the grid to help the electricity supply during periods where it is needed. Under this kind of arrangement, the vehicle owners are compensated by the grid operator for access to electricity stored in their vehicle's battery.

Watt: means the unit of electrical power equal to one ampere under a pressure of one volt. A Watt is equal to 1/746 horsepower.[4]

[2] U.S. Energy Information Administration Glossary
[3] https://www.lexico.com/en/definition/smart_grid
[4] U.S. Energy Information Administration Glossary

II. INTRODUCTION

1. In accordance with Section 17 of the Regulatory Authority Act (the "RAA"), the Regulatory Authority of Bermuda (the "RA)" should periodically conduct a comprehensive review of each regulated industry sector.

2. This Preliminary Report on the Electricity Sectoral Review ("Preliminary Report") follows from the Review of the Electricity Sector Consultation Document (the "Consultation Document") issued by the RA dated 28 October 2019 and discusses a number of issues and recommendations which the RA is considering as part of the sectoral review of the electricity sector (the "Electricity Sectoral Review").

3. The purpose of this Preliminary Report is to: (i) present the preliminary conclusions and recommendations of the RA following its assessment of the responses to the Consultation Document; and (ii) invite comments from the public on the Preliminary Report.

4. This Preliminary Report presents a summary of the RA's proposed recommendations that will be set out in a final report, which the RA will issue in accordance with Section 72(2) of the RAA.

5. On 22 August 2019, the RA commenced its comprehensive review of the electricity sector of Bermuda (the "Assessment").

6. The approach of the Assessment included the following steps:

   (i) assess whether the functions conferred on various stakeholders within the legal framework are adequate to enable the sector to meet the stated purposes of the RAA and the Electricity Act 2016 (the "EA");

   (ii) assess whether the set of regulatory instruments currently forming the secondary legislation for the sector (i.e. regulations, general determinations, orders, licences and guidelines published by the RA) are adequate to enable the RA to fully discharge the functions conferred in the legal framework; and

   (iii) assess whether the full range of regulatory instruments forming the regulatory framework is still consistent with sectoral policy.

7. On 28 October 2019, the RA issued the Consultation Document, which presented the main findings of the Assessment and the RA's preliminary recommendations to improve the efficiency of the current regulatory framework governing the electricity sector of Bermuda.

8. The RA received eighteen (18) responses to the Consultation Document by the deadline of 6 December 2019.

9. The Preliminary Report is structured as follows:

   (a) Section II provides background to the consultation;

   (b) Section III outlines the consultation process;

   (c) Section IV sets out the legislative context for the Electricity Sectoral Review;

   (d) Section V summarises the responses to the Consultation Document;

   (e) Section VI sets out the conclusions of the RA's assessment; and

   (f) Section VII summarises the proposed recommendations of the RA.

10. At the conclusion of the consultation process, the RA will issue a Final Report setting out its findings and recommendations for the Electricity Sectoral Review which will be issued by the RA in accordance with the statutory deadline of 28 July 2020.

III. BACKGROUND

11. The RA initiated the consultation process by publishing the Consultation Document on 28 October 2019, which invited responses from members of the public, including participants, sectoral service providers, as well as other interested parties. All interested parties were invited to provide responses to the Consultation Document by 6 December 2019.

12. The Consultation Document also asked the following questions:

Question 1: Do you believe that the functions of the RA should explicitly include the promotion of clean energy?

Question 2: Do you agree that the EA should be amended to add clarity and flexibility as necessary to achieve the amendments proposed by this review?

Question 3: Should the RA or BELCO (in its capacity as the TD&R Licensee) prepare the first draft of the IRP? What advantages and disadvantages would your choice have?

Question 4: Do you believe that the complaint handling policy of the TD&R Licensee should be subject to review and approval by the RA?

Question 5: Should both short-term and long-term targets for renewable energy procurement be established? Should targets pertain to specific renewable technologies or be technology neutral?

Question 6: Do you believe that the government policy should make provisions to promote emerging renewable technologies (e.g. wave and tidal power, etc.)?

Question 7: Should the supply of electricity into the electricity grid from non-renewable sources of any size require a licence?

Question 8: Should the definition of "distributed generation" only be applicable to renewable energy technologies?

Question 9: Do you agree that community energy projects would be beneficial for the local communities and they should be supported?

Question 10: What do you see as the potential benefits of the two proposed approaches to community energy projects: cash (dividend) or off-setting electricity consumption? Please state if there is an approach that you prefer. (This question only needs to be answered if Question 9 was answered with 'Yes'.)

Question 11: Should BELCO (as the TD&R Licensee) manage the procurement of new bulk generation?

Question 12: In the context of IPP procurement, should the Authority play a bigger role (e.g. defining the information request for new entrants, timeline for evaluating proposals, evaluation criteria, and roles and responsibilities of stakeholders)?

Question 13: Which of the following should be included in prices paid by consumers at electric vehicle charging points (select all that apply):

(a) the cost of electricity;

(b) the EV charging infrastructure costs;

(c) the operational costs of the EV charging infrastructure; and/or

(d) none of the above.

If your answer is (d), how should these costs be recovered?

Question 14: Do you agree that the potential benefits of allowing peer-to-peer trading should be explored (e.g. through research or pilot projects)?

Question 15: Do you believe that there should be public charging points for electric vehicles across Bermuda that consumers can pay to use (i.e. commercial EV charging points)?

Question 16: Should BELCO be the sole owner and operator of commercial EV charging points? What advantages and/or disadvantages would this have?

13. Contributions from respondents covered a wide range of areas, including the following:

i. Regulatory authority within the electricity sector;

ii. Administrative responsibilities in the sector;

iii. Distributed generation;

iv. Implementation of community projects in Bermuda;

v. Electricity procurement responsibilities;

vi. Peer-to-peer ("P2P") trading; and

vii. Electric vehicle ("EV") charging.

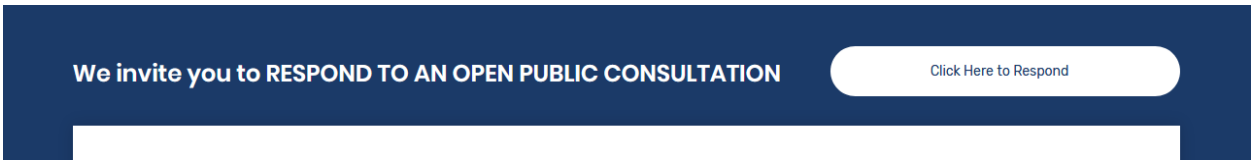
IV. CONSULTATION PROCEDURE

14. This consultation is undertaken in accordance with Sections 17 and 69-73 of the RAA and Sections 6, 14 and 17 of the EA. The procedure and accompanying timelines (as per Section 70 of the RAA), under which the consultation is taking place are set out in paragraphs 15-23 below.

15. Written comments should be submitted before 11:59 PM (Bermuda time) on 2 June 2020.

16. The RA invites comments from all interested members of the public, electricity sectoral participants, and other interested parties. The RA requests that commenting parties, in their responses, reference the number of the relevant questions and/or paragraphs, as set out in this Preliminary Report, to which they are responding.

17. Responses to this Preliminary Report should be filed electronically in MS Word or Adobe Acrobat format. Parties wishing to file comments should go to the RA's website www.ra.bm and click on the "Click Here to Respond" button on the RA's home page (show below):



18. All comments should be clearly marked "Comments on the Preliminary Report and Preliminary Recommendations - Electricity Sectoral Review".

19. The RA intends to make responses to this Preliminary Report 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 RA's Interim Administrative Rules.

20. 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 out in this paragraph 20. An ex parte communication is defined as any communication to a Commissioner or member of staff of the RA regarding the matter being consulted on in

this Preliminary Report, other than a written submission made pursuant to this Section IV. Within two business days after making an ex parte communication, the person who made the ex parte communication shall submit the following to the RA: (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 RA's website, together with a notice of the ex parte communication.

21. The principal point of contact at the RA for this Preliminary Report is the Head of Regulation who may be contacted by email, referencing "Comments on the Preliminary Report - Electricity Sectoral Review" at consultation@ra.bm

Head of Regulation
Regulatory Authority
1st Floor, Craig Appin House
8 Wesley Street
Hamilton, Bermuda.

22. In this Preliminary Report, 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.

23. This Preliminary Report is not a binding legal document and does not contain legal, commercial, financial, technical or other advice. The RA is not bound by this Preliminary Report, nor does it necessarily set out the RA's final or definitive position on particular matters. To the extent that there might be any inconsistency between the contents of this Preliminary Report and the due exercise by the RA 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 RA.

V. LEGISLATIVE CONTEXT

24. The RA was established as a cross-sectoral, independent and accountable regulatory body pursuant to the RAA, "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."[5]

25. The RA has a duty under Section 12 of the RAA to ensure that the regulation of the electricity sector promotes competition, the interests of residents and consumers of Bermuda, the development of the Bermudian economy, Bermudian employment and Bermudian ownership, innovation and to fulfil any additional functions specified by sectoral legislation.

26. The RA has the powers to supervise, monitor and regulate the electricity sector in Bermuda in accordance with the purposes of the EA. Such purposes, as set out in Section 6 of the EA, are:

    (a) to ensure 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;

    (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; and

    (f) to promote economic efficiency and sustainability in the generation, transmission, distribution and sale of electricity.

27. Section 14 of the EA requires the RA "generally to monitor and regulate the electricity sector" in addition to the detailed functions described in the RAA and elsewhere in the EA.

[5] Preamble to the RAA

28. The Minister responsible for electricity is currently the Minister of Home Affairs (the "Minister").

29. The RA has a legal obligation under Section 17 of the RAA to conduct a comprehensive review of each regulated industry sector every three years, including all policies, legislation, regulations and administrative determinations applicable to the sector.

30. The RA is required to initiate the first sectoral review for each regulated sector no later than three years after the commencement of the applicable sectoral legislation, unless sectoral legislation provides otherwise. The EA, which is the applicable sectoral legislation for the electricity sector, came into effect on 28 October 2016, which set an initial deadline for the commencement of the Sectoral Review of 28 October 2019.

31. Furthermore, the sectoral review process must be initiated by the RA by publishing a consultation document, as described in section 70 of the RAA, inviting interested parties to publicly comment on (i) present market conditions in the electricity sector; (ii) regulations and administrative determinations applicable to the sector that should be made, modified or revoked; and (iii) any other relevant issues.

32. On 28 October 2019, the RA issued the Consultation Document, which presented the main findings of RA's assessment of the electricity sector in Bermuda and the RA's preliminary recommendations to improve the efficiency of the current electricity regulatory framework.

33. In accordance with Section 17(3) of the RAA, not later than six months after the date on which the RA issued the Consultation Document, the RA must issue a preliminary report.

34. Section 72(2) of the RAA outlines the required contents of the preliminary report. For the purpose of the preliminary report and preliminary recommendation the document should include the following:

    (a) a summary of the significant material in the administrative record;

    (b) a reasoned explanation of the basis on which the RA made any significant factual finding, policy determination and legal conclusion;

    (c) the RA's preliminary conclusions;

    (d) policy or regulations that the RA proposes to recommend to a Minister; and

    (e) state the procedures and time frames for submitting responses regarding the preliminary report, recommendation or decision and order.

35. On this basis and the following consultation, this document constitutes the RA's Preliminary Report pursuant to section 17 of the RAA.

36. The RA is not bound by the Consultation Document, nor this Preliminary Report, nor does it necessarily set out the RA's final or definitive position on particular matters. To the extent that there may be any inconsistency between the contents of this Preliminary Report and the carrying out of the RA's duties and achievement of its objectives under law, such contents are without prejudice to the legal position of the RA.

VI. SUMMARY AND DISCUSSION OF RESPONSES

37. Following the publication of the Consultation Document on 28 October 2019, the RA received several responses from stakeholders, which responses can be found on the RA website under the Electricity Sector Assessment public consultation. In total, the RA received submissions from eighteen different respondents in compliance with the consultation procedure, the names of which are listed below:

    i. BELCO;

    ii. Algonquin Power & Utilities Corp ("Algonquin");

    iii. Bermuda Alternate Energy Limited (“BAE”);

    iv. BE Solar;

    v. Bermuda Environmental Sustainability Taskforce (“BEST”);

    vi. Chris Worboys;

    vii. David Joll – Sargasso Consulting;

    viii. Deborah Lombardo;

    ix. Energy Coalition Bermuda;

    x. Gill Nolan;

    xi. Janice Atcheson;

    xii. John Adcock;

    xiii. John-Paul Doherty;

    xiv. Kathy Cervino;

    xv. Nathaniel Hutchings;

    xvi. Raphael Knight-Packwood;

    xvii. Sir John Swan and Michael Murphy; and

    xviii. William Jewell.

38. The respondents answered the majority of questions and occasionally added information beyond the scope of the respective question. For the purposes of summarising the content, interrelated questions have been categorised into themes and the participants have been divided into three stakeholder groups.

39. The comments of the respondents have been categorised into the following themes:

    i. Regulatory authority within the electricity sector;

    ii. Administrative responsibilities of the RA;

    iii. Distributed generation;

    iv. Implementation of community projects in Bermuda;

    v. Electricity procurement responsibilities;

    vi. Peer-to-peer ("P2P") trading; and

    vii. Electric vehicle charging.

40. This section provides an overview of the key themes from the responses to the Consultation Document. The section is structured as follows:

    i. Section V.1 introduces the main stakeholder groups; and

    ii. Section V.2 summarises the findings of the consultation by theme.

VI.1 Stakeholder Groups

41. The three stakeholder groups are described below.

(a) Licensees and Licence Applicants

42. This group includes two stakeholders that currently have an active role in electricity sectors:

    i. BELCO; and

    ii. Algonquin.

(b) Professional groups with interest in renewable energy and environmental sustainability

43. This group includes organisations and bodies which focus on some segments of the electricity sector:

    i. BAE;

    ii. BE Solar; and

    iii. BEST.

(c) Public stakeholders

44. This group consists of the thirteen individuals who responded to the Consultation Document in a personal capacity:

    i. Chris Worboys;

    ii. David Joll, Sargasso Consulting;

    iii. Deborah Lombardo;

    iv. Energy Coalition Bermuda;

    v. Gill Nolan;

    vi. Janice Atcheson;

    vii. John Adcock;

    viii. John-Paul Doherty;

    ix. Kathy Cervino;

    x. Nathaniel Hutchings;

    xi. Raphael Knight-Packwood;

    xii. Sir John Swan and Michael Murphy; and

    xiii. William Jewell.

VI.2 Themes of the findings

(a) Findings relating to Regulatory Authority of Bermuda and its regulatory activities within the electricity sector

45. This theme covers the responses to the following questions:

Question 1: Do you believe that the functions of the RA should explicitly include the promotion of clean energy?

Question 2: Do you agree that the EA should be amended to add clarity and flexibility as necessary to achieve the amendments proposed by this review?

Question 5: Should both short-term and long-term targets for renewable energy procurement be established? Should targets pertain to specific renewable technologies or be technology neutral?

Question 6: Do you believe that the government policy should make provisions to promote emerging renewable technologies (e.g. wave and tidal power, etc.)?

46. All stakeholders, in response to the Consultation Document, agreed that the RA's functions should include the promotion of clean energy (Q1) and that targets should be established for the procurement of renewable energy (Q5). However, there was no common consensus on the approach. BELCO and Algonquin suggested that flexibility should be allowed regarding these targets in case of changes in market dynamics. It should be noted that targets are already in place in the Integrated Resource Plan ("IRP") regarding renewable energy procurement.

47. All stakeholders, other than BELCO, agreed that the EA should be amended as a result of this consultation (Q2) in order to achieve the changes proposed by the Consultation Document. BELCO stated that it is hesitant to support any changes to the EA as it would be premature to make pronouncements about perceived gaps in the legislative framework at this point and changes would further strain its resources as it is currently working on other regulatory obligations imposed by the EA. BELCO also took the opportunity to offer a list of suggested improvements to the EA, some of which were not covered within the consultation. BAE added that distributed generation is not represented well enough in the formulation and interpretation of the EA and should receive further support by establishing an Energy Advisory Committee.

48. Both stakeholders from the Licensees and License Applicants' group, two of the three stakeholders of the Industry group and two of the Public group noted that projects promoting emerging renewable technologies should only be pursued if economically feasible (Q6). BEST supported the idea of promoting these technologies through subsidies.

Eight stakeholders of the Public group supported promoting the emerging renewable technologies, while three indicated that only mature technologies should be considered.

49. Two stakeholders of the Public group criticised the classification of biomass as clean technology as the importation of biofuels has a significant carbon footprint.

(b) Findings related to administrative responsibilities

50. This theme covers the responses to the following questions:

Question 3: Should the RA or BELCO, in its capacity as the Transmission, Distribution & Retail ("TD&R") Licensee, prepare the first draft of the IRP? What advantages and disadvantages would your choice have?

Question 4: Do you believe that the complaint handling policy of the TD&R Licensee should be subject to review and approval by the RA?

51. Both stakeholders in the Licensees and License Applicants group considered the TD&R Licensee to be best positioned, given its expertise, to manage the IRP (Q3). Given its experience with the preparation of the first IRP, BELCO expressed its view that it would be better placed to run the process in the future.

52. BELCO also considers it unnecessary for the RA to review its complaints policy and procedures considering the low volume of complaints received and the transparency in how these complaints were processed (Q4). Algonquin recommended that the RA should provide a complaints handling framework and consider incentives based on performance.

53. The stakeholders of the Industry group had conflicting opinions on whether BELCO should be managing the IRP. BAE agreed with the approach that the RA collaborate on the IRP preparation with BELCO. BEST considers that the RA has already proven that it is capable of producing an IRP. BE Solar stated that reputable organisations, such as the Clinton Climate Foundation and Rocky Mountain Institute, should be involved, and advocated that as many stakeholders as possible should be involved in the IRP process. All stakeholders in the Industry group agreed that the RA should review the complaints process.

54. General consensus from the Public perspective is that BELCO should, at most, support the RA in producing the IRP and that the RA should review BELCO's complaints process.

(c) Findings related to distributed generation

55. This theme covers the responses to the following questions:

Question 7: Should the supply of electricity into the electricity grid from non-renewable sources of any size require a licence?

Question 8: Should the definition of "distributed generation" only be applicable to renewable energy technologies?

56. Algonquin didn't answer these questions in its consultation response.

57. BELCO raised no objections to non-renewable distributed generators[6] provided they comply with grid connection standards, pay their fair share of system use and have an appropriate license threshold (Q7, Q8).

58. Industry stakeholders had different opinions on this topic. BAE responded that combined heat and power applications should not be excluded from participating in the supply of electricity. BE Solar said there should be no promotion of non-renewables while BEST considered that there should be a license requirement for non-renewables of any size and that a distinction should be made in the definition of distributed renewable and non-renewable generation.

59. Similarly, although the stakeholders in the Public group had different opinions on the topic, most were supportive of renewables. Therefore, the stakeholders advocate a licensing system to discourage non-renewable distributed generation.

(d) Findings related to the implementation of community projects in Bermuda

60. This theme covered the comments to the following questions:

Question 9: Do you agree that community energy projects would be beneficial for the local communities and they should be supported?

Question 10: What do you see as the potential benefits of the two proposed approaches to community energy projects: cash (dividend) or off-setting electricity consumption? Please state if there is an approach that you prefer. (This question only needs to be answered if Question 9 was answered with 'Yes'.)

61. Of the Licensees and License Applicants stakeholder group, Algonquin supported community projects provided they are economically viable and ensure no-harm to customers or to the reliability of the system (Q9). BELCO stated that community projects do not appear to be viable as there seems to be little scope for them to be utilised and the feed-in-tariff ("FIT") is already in place (which fulfils the role). A wheeling charge would also need to be introduced to ensure that community projects pay for their share of grid usage. BELCO suggested another option by encouraging 'alternative financing' for low-income customers to be able to take advantage of renewable energy opportunities.

[6] Currently, any non-renewable source of power injecting electricity on the main grid needs a license, regardless of size.

Algonquin suggested that the dividend approach may be more beneficial if a wheeling charge is introduced whereas BELCO chose not to answer (Q10).

62. All stakeholders from the Industry group agreed that community projects should be introduced. BE Solar suggested that the projects would allow renters (non-property owners) to be able to participate in, and benefit from, investments in renewable energy. Other than BE Solar, which supported the dividend approach, the other stakeholders from the Industry group suggested that best practice should be followed or that both the dividend and the electricity consumption off-setting options should be explored further.

63. All but one stakeholder of the Public group agreed that community projects should be introduced. The outlier response from Sir John Swan and Michael Murphy suggested community projects should only be introduced if economically feasible. Five stakeholders of the Public group suggested that dividends would be the preferred reconciliation method, two suggested the off-setting approach and six presented different views on the topic which were outside of the scope of the consultation.

64. Two stakeholders of the Public group suggested models for community projects. The first is based on promoting rooftop solar-based community projects which would allow accumulating of capital to find optimal rooftop projects. An example given was the 'Free-Sun' community energy programme in Freiburg, Germany. The second suggested a model which is specifically aimed at helping low-income customers, similar to the scheme orchestrated by Florida Power and Light.

(e) Findings related to procurement responsibilities

65. This theme covered the comments to the following questions:

Question 11: Should BELCO, as the TD&R Licensee, manage the procurement of new bulk generation?

Question 12: In the context of Independent Power Producers ("IPP"), should the RA play a bigger role (e.g. defining the information request for new entrants, timeline for evaluating proposals, evaluation criteria, and roles and responsibilities of stakeholders)?

66. Algonquin considered that the TD&R Licensee was best placed to manage the procurement process (Q11). Furthermore, Algonquin added that it has a lot of experience in procuring renewable energy which it would be happy to share. It also recommended that the RA provide further clarity about the roles and responsibilities in the process for all participants involved in procurement (Q12).

67. BELCO suggested that it should be the entity for managing the procurement of bulk generation. It added that the EA already defines the framework for the cooperation and

relationship between BELCO and the RA and it suggested that this existing framework should be tested first before changing it.

68. BAE suggested following the practices of other island nations with mature regulatory frameworks for electricity procurement. BE Solar advocated for maximum transparency, regardless of which entity is in charge of running the process. BEST stated that BELCO should only manage the process if BELCO is paying for it. In general, all three stakeholders in the Industry group were inclined to agree that the RA should play a larger role in IPP procurement (e.g. defining the information request for new entrants, timeline for evaluating proposals, evaluation criteria, and roles and responsibilities of stakeholders).

69. Most stakeholders in the Public group did not consider that BELCO should manage the procurement process and wanted to see the RA take a stronger role in IPP procurement.

(f) Findings related to Peer-to-Peer ("P2P") trading

70. This theme covered the comments to the following question:

Question 14: Do you agree that the potential benefits of allowing peer-to-peer trading should be explored (e.g. through research or pilot projects)?

71. BELCO did not support deploying P2P because Bermuda's small population size is not able to create a viable market. The lack of wheeling provisions to support such a system would ultimately lead to rising system costs for those who will not be trading (most likely to be low income non-property owners). Furthermore, the FIT already fulfils the purpose of what P2P trading would have to offer.

72. Algonquin supported the exploration of a pilot project provided that the impacts to the wider system are assessed and the system costs of trading are fairly reconciled.

73. Industry stakeholders suggested that wheeling/trading between different parties should have been enabled in the first version of the EA. The opportunity would provide benefits to more than just property owners and improve grid resilience in the event of a natural disaster, whether that be the loss of a major power plant or damage caused by a destructive hurricane.

74. The public was overwhelmingly supportive of P2P trading other than one stakeholder, Gil Nolan, who considered that the focus should rather be on maintaining a profitable grid.

(g) Findings related to electric vehicle charging

75. This theme covered the comments to the following questions:

Question 13: Which of the following should be included in prices paid by consumers at electric vehicle charging points (select all that apply): (a) the cost of electricity; (b) the EV charging infrastructure costs; (c) the operational costs of the EV charging infrastructure; and/or (d) none of the above. If your answer is (d), how should these costs be recovered?

Question 15: Do you believe that there should be public charging points for electric vehicles across Bermuda that consumers can pay to use (i.e. commercial EV charging points)?

Question 16: Should BELCO be the sole owner and operator of commercial EV charging points? What advantages and/or disadvantages would this have?

76. Algonquin suggested that public EV charging points should exist (Q15) and that their cost recovery method should be based on the objectives of the related public policy and the ownership. Algonquin recommended that BELCO should not be the sole owner and operator of commercial EV charging points (Q16).

77. BELCO suggested that public charging points would not be required due to the small size of the island eliminating range anxiety. However, if public charging points are deemed to be economically feasible and critical to EV adoption then BELCO stated that it would be happy to facilitate the operation of such charging points.

78. Industry stakeholders agreed that public charging points should be implemented. They suggested that BELCO should not have any involvement in facilitating the operation, although one stakeholder's stance was neutral on this topic.

79. Except for one stakeholder, the Public stakeholders agreed that public EV charging points should exist. All but two of the public stakeholders consider that BELCO should not provide the charging points.

80. Most stakeholders (with seven responses) support the principle that cost recovery should include all three costs: cost of electricity, the EV charging infrastructure costs and the operational costs of the EV charging infrastructure. Of others, four selected the cost of electricity alone and one selected the cost of electricity and the operational costs of the EV charging infrastructure. The Licensees and License Applicants group and most of the Industry group stakeholders, except BEST which suggested that all three cost types should be applied, were cautious and only provided answers depending on different circumstances.

81. In addition, one Public group stakeholder gave additional information on the opportunities provided by Vehicle 2 Grid and home battery solutions and believes such opportunities would provide healthy prospects for Bermuda's future variable energy system.

82. Another Public group stakeholder took the opportunity to forewarn of the potential for social unfairness caused by EVs, since those with off-street parking and residential electricity rates will be better off than those without, who will be forced to pay public charging rates.

83. A further Public group stakeholder suggested adjusting vehicle licensing fees to tax imports on larger internal combustion engine vehicles, in order to promote EV.

VII. CONCLUSION FROM THE ASSESSMENT

84. Based on the approach described in Section V of the Consultation Document, the assessment carried out by the RA considered the following:

    a) Completeness and adequacy of the functions, role, and responsibilities of electricity sector stakeholders conferred by the legal framework and in existing licences;

    b) Lack of alignment in certain targets, definitions, and approaches between policy documents, the EA, and the IRP;

    c) Relevance and completeness of provisions pertaining to unlicensed electricity generation stakeholders;

    d) Adequacy of current measures to promote competition in Bulk Generation; and

    e) Conditions creating an enabling environment for accelerating EV deployment and promoting other emerging technological trends in Bermuda.

85. The following sub-sections outline the main conclusions identified under each of these key themes.

VII.1 Completeness and adequacy of the functions, role, and responsibilities of electricity sector stakeholders conferred by the legal framework and in existing licences

86. The wording which defines the timeline and periodicity under which retail and feed-in tariff reviews should be undertaken, set out in section 34 of the EA,[7] is open to multiple interpretations and as such requires further clarification;

87. The process defined in the EA for delivering the IRP could be modified to provide further flexibility on the nature of the respective roles of both the RA and the TD&R licensee in producing the final version of the document; and

88. BELCO's complaint handling policy (and potential updates) are not currently subject to sufficient review and validation by the RA.

[7] EA, section 37: "Within two years from the commencement date of this Part, and every five years or less as determined by the Authority, or as directed by the Minister, the Authority shall conduct (…) a retail tariff review (…) and a feed-in tariff review."

VII.2 Lack of alignment in targets, definitions, and approaches between policy documents, the EA, and the IRP

89. The National Fuels Policy (the "Fuels Policy") was issued by the government in 2018 "to direct the fuels sector towards an affordable, sustainable, safe, and secure energy future, in line with international best practice." It includes an aspirational scenario that includes replacement of heavy fuel and light fuel oil with liquefied natural gas as the main fuel for BELCO's generators, whilst the plan outlined in the IRP does not. However, the Fuels Policy states that "the [IRP] process defines which power generation solution shall be adopted."

90. There is a lack of alignment between the Electricity Policy, the Fuels Policy, and the IRP regarding the targets for renewables penetration, strategies and targets to reduce carbon emissions, carbon footprint of baseload fuels and electricity demand forecasts.

VII.3 Relevance and completeness of provisions pertaining to unlicensed electricity generation stakeholders

91. The relevance and applicability of the installed capacity threshold above which a licence is needed to operate (500 kW) should be validated.

92. There is an inconsistency emerging from the fact that the threshold and definition of "distributed generation" in the EA and the Electricity Policy are technology-neutral, but the definition of "feed-in tariff" in the EA and the template for the Standard Contract for unlicensed generation are specific to renewable distributed generation. The practical consequence of this is that any non-renewable source supplying electricity to the grid needs a licence, regardless of size. In addition, there is no provision for non-renewable generation producers to self-consume without being completely disconnected from the grid. This poses a risk of disproportionate transaction costs per unit of generation output installed and may discourage the development of small DG units.

93. The legal framework currently prohibits the sale of electricity by any entity other than the TD&R Licensee and the use of the TD&R Licensee's network to transmit power that was not procured by the TD&R Licensee (wheeling). In practice, this prohibits third party access and sale (e.g. IPPs using the TD&R's network or a private network to sell directly to a third-party consumer), or peer-to-peer trading (i.e. localised trading of electricity between individual consumers with DG infrastructure such as community solar plants using either the TD&R's network or a private network).

VII.4 Adequacy of current measures to promote competition in Bulk Generation

94. Specific measures to promote competition in Bulk Generation are limited to those included in the TD&R licence, where the TD&R licensee (BELCO) is expected to play a central role in managing the tendering process and selecting the preferred bidder. These provisions

may need to be adjusted so that BELCO and other bidders are able to compete for new Bulk Generation projects on fair terms.

VII.5 Conditions creating an enabling environment for accelerating EV deployment and promoting other emerging technological trends in Bermuda.

95. The legal framework currently prohibits the sale of electricity by any entity other than the TD&R Licensee. In practice, this prohibits the following to be carried out by any entity other than BELCO: (i) ownership and operation of commercial public charging points for EVs (i.e. for providing EV charging in exchange for a fee); and (ii) peer-to-peer trading (i.e. localised trading of electricity between individual consumers with distributed generation infrastructure, again using either the TD&R's network or a private network). The relaxation of these prohibitions and possible cost implications need to be further considered if these trends are to be enabled in Bermuda.

VIII. PROPOSED RECOMMENDATIONS

96. Having considered the responses received and the RA assessment, the RA proposes that changes be made in the following key area of the current regulation of the electricity sector.

Legal Framework – Primary Legislation

(a) Considering the supportive responses provided by the public, the functions of the RA should explicitly include the promotion of clean energy.

(b) The EA's wording on the responsibility of the RA with relation to retail tariff and feed-in tariff reviews should be clarified regarding the timing of the reviews, particularly completion date.

(c) The EA should provide flexibility to permit the RA to create additional types of licences. These additional types of licences may include, but not be limited to, licences that would allow self-consumption by distributed generators using non-renewable energy sources or private wire supply.

(d) Having considered the different views expressed in the responses, the legal framework could be amended to allow the sale of electricity by community energy projects and/or the use of the TD&R Licensee's network to transmit power that was procured by such power plants, as both transactions are currently prohibited. Based on the support given to community energy projects in the consultation, the RA will engage with the Government with regard to this matter and to explore potential financing options.

(e) There is an inconsistency emerging from the fact that the threshold and definition of distributed generation in the EA and the Electricity Policy are technology-neutral, but the legal provisions and templates for Standard Contracts for unlicensed generation are specific to renewable distributed generation. Many respondents agreed that the definition of "distributed generation" should be limited to renewable energy technologies in the EA. Alternatively, the definition of "feed-in tariff" and the Standard Contract for distributed generation could be amended to allow owners of non-renewable generation below the license exemption capacity threshold to enter into a "non-renewable energy" Standard Contract with the TD&R Licensee. This would require specific tariff provisions, which could be reviewed on a case-by-case basis or set up in advance by the RA. The RA will seek further discussions with the Government with regard to this matter.

(f) It would be beneficial to test the advantages and challenges of peer-to-peer trading in Bermuda ahead of the next electricity sectoral review, by encouraging the TD&R Licensee to initiate a pilot scheme. Although it might be premature to make specific

provisions for this in the legal or regulatory framework at this stage, considering that the idea received public support, the RA will continue to explore and follow the latest developments in this area.

(g) The allocation of roles and responsibilities between the RA and the TD&R Licensee in producing key sectoral policy documents is not well defined. The legal and licensing framework should explicitly entitle the RA to be more actively involved, for example through step-in rights, in the preparation of key sectoral documents (such as the IRP) currently expected to be drafted by the TD&R Licensee.

Regulations, General Determinations and Others

(a) Given that the IRP is expected to be updated every 3 to 5 years based on the latest available information, sector policies should include only a small number of key long-term targets. Further, according to the requests from the public, the RA will continue to explore options for demand-side resources which are in line with the IRP.

(b) A stakeholder consultation could be conducted to test the adequacy of the licence exemption threshold level, which is currently set at 500 kW. This would need to consider pre-existing network constraints and whether different types of technologies would require a dedicated (different) threshold depending on specific circumstances. The current individual threshold level would need to be reconsidered to ensure it provides an agreeable trade-off between ensuring system stability at all times and at minimum cost, and providing sufficient incentives to fast-track behind-the-meter and renewable energy development.

Regulatory Framework: Licensing

(a) The provisions in the TD&R Licence promoting level-playing field competition in the sector should be reviewed and possibly supplemented by additional requirements and guidance. In parallel, provisions for procurement currently in the TD&R Licence should be reviewed and aligned with the provisions for competitive procurement of Bulk Generation. This may prompt a review of the roles and responsibilities of the TD&R Licensee and the RA in the process.

(b) Although generally support was provided by the public to setup public EV charging points, the prohibited activities under the current legislation prevents the setup of independent EV charging point operators (e.g. in public car parks, for residential buildings, etc.) as they would need to sell electricity to their own users. On the other hand, under the current regulatory framework, BELCO is not incentivised to develop EV charging infrastructure. Therefore, two options seem to be feasible to promote the setup of public EV charging points: (i) allow BELCO to operate

commercial EV charging infrastructure, and encourage it to include associated investment needs in future IRPs, or (ii) amend the legal framework to allow the setup of independent EV charging point operators and empower the RA to waive the need for supply licenses on a case by case basis. Considering the support from the public for EVs, the RA will engage with the Government on the development of a policy in relation to this matter.

(c) Minor amendments should be made to the standard clauses of the renewable licence template in the (Bulk Generation Licence Renewable Energy Class) General Determination 2017. The insurance clause in the standard bulk supply renewable energy licence terms should consider potential damages to the environment and the force majeure clause in the standard bulk supply renewable energy licence terms should make more explicit mention of extreme climate conditions such as hurricanes.

Policy Framework

(a) Technological and market trends indicate that considerations for accommodating EV related charging demand will need to form part of core network planning activities, to ensure the realisation of clean transport aspirations in Bermuda. The policy framework should make reference to this requirement. Given that the public showed significant interest in, and support for, implementing EV charging points, the RA will discuss the development of a policy on this matter with the Government.

(b) Many stakeholders suggested that emerging renewable energy technologies should only be pursued if economically feasible. The policy framework could be amended to explicitly encourage innovation, including emerging renewable technologies (e.g. floating solar, wave energy, or thermal conversion) and the distribution sub-sector (smart grid projects, demand-side response schemes). This could be addressed through encouraging pilots of such technologies.

Sector Documents

(a) As it was suggested by most of the respondents to the consultation, the General Determination on Principles for Consumer Protection should include provisions for a process of validation of any complaint handling policy by the RA before it becomes applicable.

(b) A specific regulatory instrument should cover the detailed provisions for competitive procurement of Bulk Generation. This should include issues such as setting up adequate timelines, the nature of information to be provided by participants, selection criteria, and roles and responsibilities of the TD&R Licensee, the RA, and the Minister in the process. The RA is currently preparing guidance for the competitive procurement of Bulk Generation.

(c) A guidance note informing customers about their rights and duties should be issued and include circumstances in which the TD&R Licensee has the obligation to connect and supply a new customer.

APPENDIX A: DOCUMENTS REVIEWED UNDER THE ASSESSMENT

Policy Framework

- National Electricity Sector Policy of Bermuda (2015)
- National Fuels Policy (2018)

Legal Framework – Primary Legislation

- Regulatory Authority Act 2011 and amendments (2014)
- Electricity Act 2016 and amendments (2017, 2019)

Regulations, General Determinations and Others

- Bermuda Integrated Resource Plan (2019)
- Decision and Order Setting Standard Contract Template (16th August 2018)
- Regulatory Authority (Retail Tariff Methodology) General Determination 2018
- Regulatory Authority (Service Standards Indicators for Electricity Licensees) General Determination 2018
- Regulatory Authority (Renewable Energy Metering Scheme) General Determination 2018
- Electricity (Licence Threshold) Regulations 2018
- Electricity (Regulatory Authority Fees) Regulations 2018
- Regulatory Authority (Feed-in Tariff Methodology) General Determination 2018
- Regulatory Authority (Regulatory Accounting Instructions for Electricity Sector) General Determination 2018
- Regulatory Authority (Application Process for Electricity Licences) General Determination 2017
- Regulatory Authority (Bulk Generation Licence Renewable Energy Class) General Determination 2017
- Regulatory Authority (Bulk Generation Licence) General Determination 2017
- Regulatory Authority (Transmission, Distribution, and Retail Licence) General Determination 2017
- Regulatory Authority (Adjudication Rules) General Determination 2014

Regulatory Framework: Licensing

- Bulk Generation Licence granted to BELCO (2017)
- Bulk Generation Licence granted to Tyne's Bay (2017)
- TD&R Licence granted to BELCO (2017)

Sector Documents

- Grid Code (to be issued by the TD&R Licensee)
- Grid Connection Policy (issued by the TD&R Licensee)
- Preliminary Report and proposed General Determination on Principles of Consumer Protection