



# **Review of the Electricity Sector**

Final Report

Final Recommendations

Date: 28 July 2020

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## I. DEFINITIONS

**Bulk generation (BG):** means an electricity generating system that is built on a dedicated site, is developed for commercial purposes of selling all electricity produced and is connected to higher voltage lines for being distributed to the entire customer base.

**Distributed generation (DG):** means electricity that is generated by a plant directly connected to the distribution network and therefore located at or close to the end users of power.

**Demand-side management (DSM):** means a utility action that reduces or curtails end-use equipment or processes. Demand-side management is often used in order to reduce customer load during peak demand and/or in times of supply constraint.<sup>1</sup>

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

**Electricity distribution:** means the flow of electricity from a high-voltage transmission system through an electrical network of lower voltage that supplies electricity to customers.

**Electricity transmission:** means the activity of moving the generated electricity from power plants to distribution systems through high-voltage transmission lines.

**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 a rate at which the TD&R Licensee purchases electricity from customers who generate their own electricity from renewable energy sources, for example with solar panels or wind turbines.

**Independent Power Producer (IPP):** means a non-utility electricity generator that generates electricity for sale to BELCO (as the TD&R Licensee).

**Integrated resource plan (IRP):** means a long-term roadmap used for planning the supply-side and demand-side resources of an electric system.

**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.

**Peer-to-peer electricity trading:** 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).

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<sup>1</sup> U.S. Energy Information Administration Glossary

**Preferred Bidder:** in the context of a competitive procurement process for a given bulk generation project, the Preferred Bidder is the Bidder that is selected to develop this project, in due course, at the conclusion of the process.

**Private wire Power Purchase Agreement (PPA):** A private wire PPA is an agreement where an electricity generator supplies electricity directly to an end user via a privately-owned and operated interconnection.

**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.<sup>2</sup>

**Smart grid:** means “an electricity supply network that uses digital communications technology to detect and react to local changes in usage”.<sup>3</sup>

**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 in 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.<sup>4</sup>

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<sup>2</sup> U.S. Energy Information Administration Glossary

<sup>3</sup> [https://www.lexico.com/en/definition/smart\\_grid](https://www.lexico.com/en/definition/smart_grid)

<sup>4</sup> U.S. Energy Information Administration Glossary

## II. INTRODUCTION

1. The purpose of this Final Report and Final Recommendations (the “Final Report”) is for the Regulatory Authority of Bermuda (the “RA”) to present the RA’s final conclusions and recommendations to the Minister following its assessment of the responses to the Review of the Electricity Sector Consultation Document (the “Consultation Document”) and Preliminary Report and Preliminary Recommendations (the “Preliminary Report”).
2. In accordance with the Regulatory Authority Act 2011 (the “RAA”), the RA should periodically conduct a comprehensive review of each regulated industry sector.
3. On 22 August 2019, the RA launched the comprehensive review of the electricity sector (the “Assessment”).
4. On 28 October 2019, the RA issued the Consultation Document, which presented the main findings of the RA’s assessment of the electricity sector in Bermuda and the RA’s preliminary proposals to improve the efficiency of the current regulatory framework.
5. The RA received eighteen responses to the Consultation Document by the deadline of 6 December 2019.
6. On 27 April 2020, the RA issued the Preliminary Report, which summarised the responses received to the Consultation Document and presented the preliminary conclusions and recommendations of the RA.
7. The RA received three responses to the Preliminary Report by the deadline of 2 June 2020.
8. The Final Report is structured as follows:
  - (a) section III provides background to the consultation;
  - (b) section IV sets out the legislative context for the Sectoral Review;
  - (c) section V summarises the responses to the Consultation Document;
  - (d) section VI summarises the responses to the Preliminary Report;
  - (e) section VII provides the rationale for removing former recommendations; and
  - (f) section VIII sets out the proposed final recommendations of the RA.

### III. BACKGROUND

9. The legislation (section 17 of the RAA) requires that the RA undertake an electricity sector review, in which the RA conducted a review and identified a number of focus areas and key questions to consult on. The scope of the sector review included all policies, legislation, regulations and administrative determinations applicable to the electricity sector. The background and initial findings of the sector review were set out in the Consultation Document. The Consultation Document also laid out the methodology used to assess the electricity sector and stated the current structure of the electricity sector and the trends identified that may influence the future of the sector.
10. The RA initiated the consultation by publishing the Consultation Document on 28 October 2019, which invited responses from members of the public, including participants, sectoral service providers, and other interested parties. Interested parties were invited to provide responses to the initial Consultation Document by 6 December 2019.
11. The Consultation Document 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?

12. The Consultation Document received eighteen responses from the following:

- i. Bermuda Electric and Light Company (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.
13. On 27 April 2020, the RA issued the Preliminary Report. The RA invited responses from members of the public, including electricity sectoral participants and sectoral providers and other interested parties.
14. Public comments on the Preliminary Report were to be submitted by the deadline of 2 June 2020.
15. The Authority received three written responses to the Preliminary Report from:
- i. BELCO
  - ii. Algonquin; and
  - iii. Sir John Swan and Lawrence M. Murphy (combined response).

#### **IV. LEGISLATIVE CONTEXT**

16. The RA has been established as a cross-sectoral, independent and accountable regulatory body according 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.”<sup>5</sup>

17. The principal functions of the RA, in relation to any regulated industry sector, are described in section 12 of the RAA as follows:
  - (a) to promote and preserve competition;
  - (b) to promote the interests of the residents and consumers of Bermuda;
  - (c) to promote the development of the Bermudian economy, Bermudian employment and Bermudian ownership;
  - (d) to promote innovation; and
  - (e) to fulfil any additional functions specified by sectoral legislation.
18. Section 14 of the EA gives the RA the function “generally to monitor and regulate the electricity sector” together with the detailed functions described in the RAA and elsewhere in the EA. Hence, the RA regulates the electricity sector in Bermuda.
19. 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 forth 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.

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<sup>5</sup> Preamble to the RAA

20. The Minister responsible for electricity is currently the Minister of Home Affairs (the “Minister”).
21. In accordance with section 17 of the RAA, the RA should periodically conduct a comprehensive review of each regulated industry sector, including all policies, legislation, regulations and administrative determinations applicable to the sector.
22. Furthermore, the review process should be initiated by the RA publishing a consultation document, as described in section 70 of the RAA, inviting comment regarding (i) market conditions in the sector; (ii) regulations and administrative determinations applicable to the sector that should be made, modified or revoked; and (iii) any other relevant issues.
23. 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 proposals to improve the efficiency of the current regulatory framework.
24. According to section 72 (1) and (2) of the RAA, the RA issued the Preliminary Report on 27 April 2020 and sought comments from the public upon.
25. Pursuant to section 72 (4) of the RAA, within a reasonable period after the closing the consultation on the preliminary report, the RA should issue a final report and, if appropriate, a final recommendation or decision. Therefore, the RA hereby issues this Final Report.

## V. SUMMARY AND DISCUSSION OF RESPONSES TO THE INITIAL CONSULTATION DOCUMENT

26. Following the publication of the Consultation Document on 28 October 2019, the RA received several responses from stakeholders. In total, the RA received submissions from eighteen different respondents in compliance with the consultation procedure, the names of which are listed below:
- i. Bermuda Electric and Light Company (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.
27. The respondents answered the majority of questions and occasionally added information beyond the scope of the question. For the purposes of summarising the content, interrelated

questions have been categorised into themes and the participating entities have been divided into three stakeholder groups.

28. 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.

29. 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.

#### **V.1 Stakeholder groups**

30. The three stakeholder groups are described below.

##### **(a) Licensees and License Applicants**

31. This group includes two stakeholders that currently have an active role in the electricity sector or may have in the near future.

- i. Bermuda Electric and Light Company (“BELCO”); and
- ii. Algonquin Power & Utilities Corp (“Algonquin”).

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

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

- i. Bermuda Alternate Energy Limited (“BAE”);

- ii. BE Solar; and
- iii. Bermuda Environmental Sustainability Taskforce (“BEST”).

**(c) Public stakeholders**

33. This group consists of the thirteen individuals who responded the consultation 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.

**V.2 Themes of the findings**

**(a) Findings relating to regulatory authority within the electricity sector**

34. 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.)?

35. All stakeholders in the consultation 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 IRP regarding renewable energy procurement. [Section amended through further response, see section VI].
36. All stakeholders, other than BELCO, agreed that the EA should be amended as a result of this consultation (Q2) to achieve the changes proposed by the Consultation Document. BELCO suggested no changes to the EA as it would be premature to make pronouncements about perceived gaps in the framework at this point and changes would stretch their resources who are already working on other aspects of 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 current legislation (i.e. EA) and should receive further support by establishing an Energy Advisory Committee. [Section amended through further response, see section VI].
37. 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 even through subsidies. Eight stakeholders of the Public group supported promoting the emerging renewable technologies, while three indicated that only mature technologies should be considered.
38. Two stakeholders of the Public group criticised the classification of biomass as clean technology as the import of pellets has a significant carbon footprint.

**(b) Findings related to administrative responsibilities**

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

**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?

40. Both stakeholders in the Licensees and License Applicants group considered the TD&R Licensee to be best positioned, given their expertise, to manage the IRP (Q3). Given their 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.
41. BELCO also considers it unnecessary for the RA to review their complaints policy 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 framework and consider incentives based on performance. [Section amended through further response, see section VI].
42. 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 have already proven that they are 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.
43. 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**

44. 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?

45. Algonquin didn't answer these questions in their consultation response.
46. BELCO raised no objections to non-renewable distributed generators<sup>6</sup> provided they comply with grid connection standards, pay their fair share of system use and have an appropriate license threshold (Q7, Q8).
47. Industry stakeholders had different opinions on this topic. BAE responded that CHP should not be excluded from being able to participate 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.

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<sup>6</sup>Currently, any non-renewable source of power injecting electricity on the main grid needs a license, regardless of size.

48. Similarly, the Public opinion differs, although most were supportive of renewables and therefore wanted to see a license in place to discourage non-renewable distributed generation.

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

49. 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'.)

50. 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 appear to be not 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 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. Algonquin suggested that the dividend approach may be more beneficial if a wheeling charge is introduced whereas BELCO chose not to answer (Q10).
51. 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 and benefit from investments in renewable energy. Other than BE Solar, who 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.
52. 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 only to 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.
53. 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**

54. 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 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)?

55. Algonquin considered that the TD&R Licensee was best placed to manage the procurement process (Q11). Furthermore, Algonquin added that they have a lot of experience in procuring renewable energy that they would be happy to share. They also recommended that the RA provides clarity about the roles and responsibilities in the process for all players involved in procurement (Q12).

56. BELCO suggested that they should be the entity for managing the procurement of Bulk Generation. They added that the EA already defines the framework for the cooperation and relationship between BELCO and the RA and they suggested that this existing framework should be tested first before changing it. [Section amended through further response, see section VI].

57. 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 they are paying for it. In general, all three stakeholders in the Industry group 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).

58. 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 P2P trading**

59. 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)?

60. 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. [Section amended through further response, see section VI].

61. 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.
62. 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.
63. 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**

64. 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?

65. 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).
66. 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 they would be happy to facilitate their operation. [Section amended through further response, see section VI].
67. 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.
68. 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.

69. 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.
70. In addition, one Public group stakeholder gave additional information on the opportunities provided by Vehicle 2 Grid and home battery solutions which provide healthy prospect for Bermuda's future variable energy system.
71. 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 which, though low at the moment, could rise in future.
72. A further Public group stakeholder suggested adjusting vehicle licensing fees to tax imports on larger internal combustion engine vehicles, in order to promote EV.

## **VI. SUMMARY AND DISCUSSION OF RESPONSES TO THE PRELIMINARY REPORT AND PRELIMINARY RECOMMENDATIONS**

73. Based on its initial assessment of the electricity sector and the information provided through the consultation responses, the RA reached a preliminary position on each of the issues. It published these in a Preliminary Report and sought stakeholder views on this Report.
74. Following the publication of the Preliminary Report on 27 April 2020, the RA received three responses from the following stakeholders:
- i. BELCO;
  - ii. Algonquin; and
  - iii. Sir John Swan and Lawrence M. Murphy.
75. The following section provides an overview of the key themes from the public's responses to the Preliminary Report, as well as the RA's final position.

### **VI.1 Responses from BELCO**

76. The key points of BELCO's submission were as follows:
- A. Overarching comments regarding the consultation process
  - B. Specific comments with regard to some topics

#### **VI.1.A Overarching comments**

77. BELCO indicates that, in their view, the "statutory process" set out in "Section 17 of the RAA" "does not appear to have been followed". BELCO states that "the RA appears to have reached conclusions in advance in the First Round Consultation Document" and that "given that the Conclusions [contained in the Preliminary Report] are substantially identical to the Initial Conclusions and that the Proposed Recommendations are largely similar to the Proposed Changes, it is wondered how the RA has taken into account the public's views."
78. In the RA's view it has followed its standard practice of consultation in accordance with the RAA. During the process, the RA conducted a comprehensive review of the sector and published the Consultation Document seeking focused comments from the public. This is an internationally accepted approach to stakeholder consultation. The review covered the topic areas listed under Section 17 of the RAA, i.e. "market conditions in the sector; regulations and administrative determinations applicable to the sector that should be made, modified or revoked; and any other issues found to be relevant by the Authority".
79. The Consultation Document presented the issues identified by the sector assessment, the RA's views on the various issues and relevant question(s) raised in order to confirm, invalidate, or further refine views expressed throughout the Consultation Document.

80. For most parts, the majority of public comments received in response to the Consultation Document confirmed the initial views expressed by the RA (see the analysis in section V). When they did, the agreement with the Proposed Change was generally unconditional and did not require further refinements in the formulation and/or in the nature of the Proposed Change.
81. When some responses objected to or disagreed with all or part of a Proposed Change, the RA carefully considered the information provided. In most cases the justifications provided in the response failed to convince the RA that the underlying rationale was detailed or sound enough to result in a significant change in the nature of the Proposed Change.
82. BELCO also stated that in its opinion the RA did not meet the requirements set out in Section 72(2)(b) of the RAA, under which “the RA has an obligation to provide a reasoned explanation of the basis on which the Authority made any significant factual finding, policy determination and legal conclusion (each a “Reasoned Explanation”).
83. The RA considers that it has provided adequate justifications for the Proposed Changes and Proposed Recommendations in the Preliminary Report. In addition, the RA has now included below more detailed responses to BELCO’s specific areas of concern and queries. This further detail refines the Reasoned Explanation underlying the Proposed Recommendations.
84. It is BELCO’s view that under Section 72(2)(d) of the RAA, a “preliminary recommendation” is required to “state any policy and regulations that the Authority proposes to recommend to a Minister”, and that in this regard the “Proposed Recommendations” are “far too vague to be able to be commented upon”.
85. The RA response is that it does not have the mandate to make specific amendments to policy and legislative documents. Section 72 of the RAA provides for the RA to “state the policy or regulations that the Authority recommends the Minister to adopt” – which does not specify the point at which such policy or regulation needs to be fully drafted. In that spirit the Preliminary Report to this sectoral review aimed to identify areas within legal and policy documents where changes would be appropriate, what the nature of those changes needed to be, and justified why those changes would be beneficial along with a reasoned explanation, for further refinement and adoption by the relevant Minister.
86. For those areas where BELCO, in their latest submission, requested further details on the nature of the intended change, or on the underlying rationale for the change, we have provided additional information in the latter part of this section. The RA considers that the approach adopted continues to comply with provisions of Section 72 of the RAA.
87. BELCO considers that it was misquoted a number of times. In its ‘Overarching comments’ section BELCO mentions two specific examples.
  - i. The following statement of BELCO “certain aspects of the EA regime that are underway already **use many stakeholder resources that would be further stretched** in the event of any efforts to amend legislation at this time...Further

stretching resources may inevitably impact the quality of any decisions taken for the electricity sector” was paraphrased as “BELCO states 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”.

- ii. BELCO suggests that the statement from the Preliminary Report “BELCO also took the opportunity to offer a list of suggested improvements to the EA, some of which were not covered within the consultation” did not reflect their view as BELCO stated that “Not only did BELCO not suggest improvements to the EA; it also did not suggest improvements not covered within the Consultation”.
88. The RA considers that the number and level of detail of responses to the consultation were such that it was not practical to quote the full extent of all responses provided by participants, which unavoidably led to instances of paraphrasing and synthesizing multiple responses expressing a similar although not exactly identical viewpoint. The RA welcomes the opportunity to further refine, in this final report, the more precise opinion which BELCO is intending to convey.
  89. BELCO considers that some key considerations are excluded from the proposed recommendations. It mentions the statement in the Preliminary Report that “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, ...”. While BELCO agrees with the statement it notes that there is no proposed recommendation related to this issue. BELCO also adds that policy is set “by the Minister and should not be set in the IRP”.
  90. The RA agrees that policy is set by the Minister and should not be set in the Integrated Resource Plan (“IRP”). As provided for in Section 40 (2) of the EA, the IRP should “conform to Ministerial directions” and “be reasonably likely to supply electricity at the least cost”. This provision, however, does not formally indicate that the IRP must conform to sectoral policy that is not conveyed through a Ministerial direction. The 2019 IRP has been developed in alignment with those provisions, whilst ensuring the highest possible level of compatibility with pre-existing sectoral policies.
  91. The RA consider it appropriate to comment on some degree of discrepancy between the 2019 IRP and, in particular, the 2018 National Fuels Policy. The 2019 IRP conforms to the 2035 targets from the 2015 National Electricity Sector Policy of Bermuda – but does question whether policy targets should be more ambitious towards renewable energy penetration in Bermuda in the longer run, and whether the short-term targets are realistic. This discrepancy is however unlikely to directly impact the smooth undertaking and implementation of future IRPs. Therefore, the RA intended to express an observation on this topic, for further discussion with the Minister, rather than a formal recommendation.
  92. An IRP, once approved, can influence the amendment of policies but is not a policy document itself. The RA believes that it is fundamental to observe the difference between

the intended frequency of updates of sectoral policies (generally intended to express a long-term vision for the sector) and the IRP (intended to be updated every five years or less). As such the RA considers that it would be beneficial for policy to provide longer-term sectoral objectives than they do at present, and focus on a small number of key high-level targets.

### **VI.1.B Specific Comments**

93. The following section summarises BELCO's comments on (a selection of) the proposed recommendations and the RA's responses to those comments.

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

94. BELCO claims that "the functions of the RA already explicitly include the promotion of clean energy".

95. Section 6 of the EA sets out the purposes of the Electricity Act, including "to promote the use of cleaner energy sources and technologies". Section 14 of the EA states that the functions of the Authority "shall include (...) the functions necessary to effectively and efficiently achieve the purposes set out in section 6". The RA recognises that the promotion of cleaner energy sources is, implicitly, a function of the RA. However, the RA considers that "cleaner" (as per the EA) does not bear the same definition nor intent as "clean" – for example, "cleaner" sources could refer to technologies improving carbon intensity of fuel-based technologies. In addition, the RA considers that there is value in making this function explicit.

96. BELCO indicates that it "would have been helpful had the RA specifically indicated the proposed legislative changes to be recommended".

97. In light of the above, the RA confirms its recommendation to include "to promote the use of clean energy sources" as an explicit function of the RA under Section 12 of the RAA and considers that this recommendation clearly indicates the proposed legislative change. The RA considers that changes to the EA are required at this time.

**(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.**

98. BELCO indicated that it would welcome "clear indication from the RA as to the precise form of the Proposed Recommendation" and "would be grateful for the opportunity to review any proposed legislation in this regard". BELCO also reiterated its response to the Consultation Document in which it "recommended reasonable time periods between reviews" and stated that "tariff reviews should be coordinated between the RA and BELCO".

99. The RA agrees that the frequency of the retail and feed-in tariff reviews should not be overly frequent, after an initial transitional period, to avoid unnecessary additional resource

demands and regulatory uncertainty. The RA agrees that tariff reviews should be conducted in close coordination between the RA and BELCO.

100. The RA notes that this specific recommendation was initially based on the observation that it would be beneficial to further clarify the wording pertaining to the responsibilities of the RA in relation to retail tariff and feed-in tariff reviews. More specifically, Section 37 of the EA could be amended to replace the current wording of:

“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.”

With

“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 **complete** (...) a retail tariff review (...) and a feed-in tariff review.”

101. The RA considers that the current wording does not provide sufficient clarity, since “conduct” does not precisely indicate the start or the end of the review process and that the maximum length of such review is not indicated, does introduce some ambiguity as to the exact frequency at which tariff reviews need to be initiated or indeed “completed” (recommended change). This provides further clarity that the process will be completed within the period specified.

**(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.**

102. BELCO advocates that “the RA has not provided a Reasoned Explanation for this Proposed Recommendation” and that it “does not agree with the Proposed Recommendation”. BELCO reiterated that “any new licences permitted to be granted under the EA ought to be considered through Government policy and public consultation and expressly defined and added to the list of potential licences set out under the relevant section of the EA (currently, section 20(1)).”

103. The RA notes that the main reason supporting this recommendation is that there is an inconsistency emerging from the fact that the threshold and definition of distributed generation (“DG”) in the EA and the Electricity Policy are technology-neutral, but that legal provisions and templates for Standard Contracts for unlicensed generation are specific to renewable DG.

104. The practical consequence of this is that any non-renewable energy source of power injecting electricity onto the grid needs a license, regardless of size. This poses the risk of disproportionate transaction costs per unit of electricity installed for these DG sources.

105. The RA fully agrees that any such change would require amending Section 20 of the EA, and would be accompanied by provisions, most probably in the licensing framework, to ensure that power supply under such licenses does not adversely impact the operation of the transmission and distribution networks. BELCO (and other stakeholders) would be consulted throughout the development of such licenses. It would also be essential to ensure that the implementation of such provisions would remain compatible with IRP orientation and sectoral policy.
106. The RA notes that BELCO did not provide a specific justification for its opposition to this recommendation. In light of the above explanation, the RA confirms that the recommendation is retained.
- (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.**
107. BELCO advocates that no appropriate explanation was provided and that "General support does not, however, make any particular proposed recommendation appropriate for Bermuda". BELCO clarified that its response to this issue in the Consultation Document was that it considers that there is "little merit in fragmenting a tiny market" for community energy projects.
108. The RA considers that so-called "community energy projects" have provided significant benefits within communities where they have already been implemented around the world, including providing access to further economies of scale than individual users can typically tap into when commissioning rooftop solar panels, and unlocking a range of social benefits. Scarce land availability in Bermuda requires that stakeholders consider a variety of approaches to meet the renewable energy objectives of the IRP. Although utility-scale projects should be pursued first, the size of some of the potential PV sites across Bermuda (while higher than the licence threshold of 500kW) is too small to be conducive to an internationally competitive procurement process. International experience indicates that a community energy approach could be a suitable framework to develop such projects.
109. This being said, the RA agrees with the view that community projects should only be promoted when it is verified that they are the best possible framework to develop a particular project in a specific location, provided that they do not have an adverse impact on any group of electricity end-users. In addition, the exact mechanisms under which such scheme would be implemented would be a determining factor of its success. Setting those mechanisms would require inputs from the Government and other relevant stakeholders. As such, the RA is not yet in a position to recommend any immediate legislative changes to implement community energy schemes.

110. Indeed, the RA does not recommend carrying out any legislative changes at present, but does recommend that it will further engage with the Government to explore the potential merits, risks, and impacts. The formulation of the recommendation has been changed to clarify this.
111. Furthermore, general support from the public around community energy scheme does contribute, in the RA's view, to a Reasoned Explanation to initiate such discussions since the level of engagement of community members is known to be a key success factor for such schemes.
- (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.**
112. BELCO advocates that it is "premature to amend the distributed generation definition given outstanding issues with the FIT pricing regime that currently does not properly reflect the value of energy on the system".
113. The RA notes BELCO's concerns in relation to the FIT pricing regime, but also notes that the General Determination on Feed-in Tariff Methodology published in 2018 resulted from a comprehensive consultation process and is in line with provisions Section 36 of the EA.
114. The RA considers that BELCO's response does not specifically address the issue raised in the Proposed Recommendation. The RA previously noted that the definition of "distributed generation" in the EA is technology-neutral, whereas the various provisions for distributed generation in the regulatory framework are specific to renewable energy sources. The only intent of this Proposed Recommendation is to resolve this discrepancy by either (i) changing the EA definition, or (ii) initiating the development of non-RE provisions for distributed generation in the regulatory framework. Since (i) would require Government inputs to change PART 1 – Interpretation of the EA, the RA is currently only recommending that it will engage in 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.**

115. BELCO notes that it considers that “no Reasoned Explanation was provided” “with respect to this Proposed Recommendation. BELCO later “reiterates that, as long as legislation prohibits peer-to-peer trading, it will be unable to launch any pilot relating to the same whether under a purported waiver or otherwise”.
116. The RA notes that the review of current progress of peer-to-peer trading internationally (in the context of trading electricity between individual customers) shows that the approach is still at a very embryonic stage. Some of the jurisdictions that have been piloting peer-to-peer trading project (e.g. Australia) have been doing so by the way of waiver, rather than by making significant amendments to the legal/regulatory framework itself. As such, and whilst recognising the potential benefits of peer-to-peer trading, it would seem premature to make specific provisions for this in the legal or regulatory framework at this stage. The RA considers that when the time is right, any such pilot should be by the way of waiver (where provided for under Section 5 of the RAA) and/or relevant legislative changes to enable waiver or establish a special licence class. The recommendation is to further explore options for peer-to-peer trading in Bermuda, and to initiate discussions with the Government to evaluate the merits and feasibility of encouraging BELCO to set up a pilot scheme (as noted above).
117. The RA notes BELCO’s concerns regarding cost implications and impact on the FIT; it is precisely out of prudence that the RA recommends exploring the merits and feasibility of an initial pilot scheme in the years to come.
118. The RA also notes that peer-to-peer trading would not necessarily require a spot market in place and reiterates the description of the concept explained in paragraph 50 of the Consultation Document namely, “This involves users purchasing electricity directly from other users who generate more electricity than they use” and “trading can be conducted between individuals”.
- (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.**
119. BELCO’s response included the objection that “the RA has failed to provide a Reasoned Explanation in relation to this proposed recommendation”. Besides, “BELCO disagrees that the roles and responsibilities between the RA and the transmission, distribution and retail licensee in producing key sectoral policy documents is not well defined”.
120. In addition, BELCO suggested an 11-step process for the development of future IRPs:

*“1. The public will be consulted on its desires for Bermuda’s energy future.*

2. *Government will set clear policy on matters including renewable targets.*
3. *Clear priorities will be set including realistic timelines.*
4. *BELCO will make initial presentation to stakeholders on key assumptions and goals and will solicit and receive stakeholder input to inform various aspects of the IRP's development.*
5. *BELCO, in its expertise, will prepare the draft IRP.*
6. *The RA will comment on the draft IRP.*
7. *The public will comment on the draft IRP.*
8. *A stakeholder session or technical conference will be held in which the public's comments and recommendations will be discussed by all parties.*
9. *Informed by the above stakeholder session and technical conference, the RA will request that BELCO make certain amendments to the IRP.*
10. *BELCO will draft and submit for approval a version of the IRP incorporating the RA's requested amendments.*
11. *If the amended draft is deemed the best approach to meeting the purposes of the EA and compliant with ministerial directions, the RA will approve the amended IRP."*

121. The RA reiterates that it considers that, in line with the legal framework, the TD&R licensee should continue to play a leading role in the preparation of sector-critical documents such as the IRP with the RA's role limited to reviewing proposals, consulting with stakeholders, indicating necessary changes and approving the final version of the IRP.
122. The RA agrees that some aspects of the process suggested by BELCO are positive and would help to improve the process – in particular "Step 1" would be well worth considering in future IRPs.
123. However, in light of the experience on the development of Bermuda's 2019 IRP, the RA considers that some aspects of the process suggested by BELCO are not practical nor fully beneficial to the public in their current form. Section 40 of the EA indicates that the RA shall "issue a notice requesting an Integrated Resource Plan proposal from the TD&R Licensee (...)" "every five years or less". It is not practical to expect that Sector Policy would be necessarily updated or formally confirmed at the same periodicity ahead of an IRP update – which BELCO's "Step 2" seems to suggest.
124. In addition, BELCO's Step 11 fails to consider the eventuality where the IRP does not fully meet Sector Policy objectives, the purposes of the EA, and/or where some of the key inputs

or results are disputed. The rationale for recommendation (g) is precisely to cater for such a scenario, by providing “step-in rights” to the RA in the IRP development process.

125. In light of the above, the Final Recommendation is that the legal and licensing framework should be amended to reflect the following process for the preparation of IRPs:

1. The public will be consulted on its desires for Bermuda’s energy future.
2. The RA will set guidance for the development of the IRP, including objectives stipulated in Sector Policy and any relevant inputs which have emerged from public consultation.
3. BELCO will consult with the RA and relevant stakeholders on key assumptions and goals and will solicit and receive stakeholder input to inform various aspects of the IRP’s development.
4. BELCO, in its expertise, will prepare the draft IRP.
5. The RA will comment on BELCO’s draft IRP and BELCO will revise its draft IRP accordingly.
6. The public will comment on the revised draft IRP.
7. A public consultation will be held during which the public’s comments and recommendations will be discussed by all parties.
8. Informed by the above stakeholder session and technical conference, the RA will request that BELCO make certain amendments to the IRP.
9. BELCO will draft and submit for approval a version of the IRP incorporating the RA’s requested amendments.
10. If the amended draft is deemed the best approach to meeting the purposes of the EA and compliant with ministerial directions, the RA will approve the amended IRP.
11. In the event where the IRP does not fully meet Sector Policy objectives, the purposes of the EA, and/or where some of the key inputs or results are disputed, the RA is able to take over the responsibility of updating and finalising the IRP in consultation and close collaboration with BELCO. Upon validating that BELCO is agreeable with the conclusions from the updated IRP, the RA will then approve the amended IRP.

**(h) A stakeholder consultation could be conducted to test the adequacy of the licence exemption threshold level, which is currently set at 500kW. 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.**

126. BELCO notes that “the RA has not provided a Reasoned Explanation”, but it “would welcome the opportunity to participate in a stakeholder consultation to test the adequacy of the licence exemption threshold level”.
  127. This recommendation originates from the observation that the current threshold level was not set on the basis of a strong technical and economic rationale, and has not yet been discussed in a formal consultation process. The RA does not have a specific view as to whether the current level is adequate or not, but strongly believes that there should be underlying technical and/or economic analysis to confirm that the level is setting the most adequate frontier between unlicensed and licensed power generation.
  128. As such the RA reiterates the view that the current individual threshold level (500 kW) should be validated, to ensure it enables 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 bulk supply renewable energy development in Bermuda.
  129. Moreover, it would be beneficial to review whether there should be one unique threshold across technologies, or one threshold for each type of generation technology (e.g. ground-mounted solar, rooftop solar, floating solar, wind, etc.).
  130. The recommendation consists of engaging further discussions with BELCO and other relevant stakeholders to validate the adequacy of the current threshold level on technical and economic grounds, and depending on the outcome of those discussions, consult with the public and consider a revision to the 2018 License Threshold regulations.
- (i) 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.**
131. BELCO advocates that “the RA does not provide a Reasoned Explanation for this Proposed Recommendation”. BELCO does not believe that new provisions for the competitive BG procurement are required at this point as the EA was designed to facilitate it by promoting competition. BELCO suggests that the legislation should be fully implemented and tested first.
  132. Whilst the RA notes that the TD&R (single-buyer) licence does presently include terms defining the process under which procurement of new bulk supply generation shall be

undertaken, specific provisions to promote level-playing field competition in the sector should be reviewed and possibly supplemented by additional requirements and guidance. An example the net benefit test criteria, which seems difficult to implement practically and impartially, especially if one of the bidders is BELCO or a company affiliated to BELCO. The competitive procurement process for bulk generation should be transparent, fair to all bidders, whilst aiming to minimise costs of supply to end-users – which the net benefit criteria, together with existing provisions within the EA, would fall short of ensuring.

133. As such, the RA considers that it should prepare and publish a standalone Administrative Determination to cover detailed provisions for the competitive procurement of renewable IPPs (i.e. the process governing the competitive selection of the Preferred Bidder), including setting up adequate timelines, nature of information to be provided by participants, selection criteria, roles and responsibilities of TD&R Licensee, RA, and Minister in the process. In parallel, provisions for procurement in the TD&R License should be reviewed and aligned with the General Determination's conclusions. Such a review is expected to include the nature of the roles and responsibilities of the TD&R Licensee in the process as opposed to those of the RA.
- (j) 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.**
134. BELCO notes that “it does not believe that the RA has provided a Reasoned Explanation” and notes that “pilots can only be undertaken if the legislative framework will permit the same”.
135. The Reasoned Explanation for this recommendation is explicit in the 2019 IRP. Bermuda's path to decarbonisation is impeded by scarce land availability for onshore renewable projects. The IRP partially addressed making the best possible use of available land with the commissioning of additional solar PV plants by 2023. An offshore wind farm is recommended for commissioning by 2027. The next base load capacity gap was identified for 2031 – for which the IRP recommends considering biomass power, failing to identify – at this stage – non-intermittent renewable technologies that would be appropriate for Bermuda, and mature enough to make reasonable and attractive cost projections for 2031. Throughout the process of future IRP updates it will be crucial to monitor the development of emerging technologies such as wave energy and assess the long-term suitability for Bermuda. In due course, this suitability could be validated via the undertaking of a small-scale pilot project.
136. The RA agrees that the undertaking of such pilot project would not be possible under the current legislative framework, and would require the relevant legislative changes to enable waiver or establish a special licence class.

137. In addition, international experience shows that there are many benefits in actively promoting the deployment of innovative technologies in the transmission and distribution subsectors (e.g. smart-grid technologies, smart metering). The RA will include this issue in its consideration of future retail rate case submissions.

**(k) 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.**

138. BELCO, in their response, objected that “the inclusion of a validation process” should “apply to all sectoral providers” and has not been “contemplated in any of the rounds of the initial consultation on consumer protection”.

139. As further expanded on and justified in Section VII, the RA has decided that this draft recommendation should be removed as it is considered unnecessary since the issue is being discussed in a separate consultation process.

**(l) 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.**

140. BELCO, in their response, objected that its “relationships with (...) customers are governed by its Service Rules and the Grid Code that is presently awaiting approval by the RA”.

141. As further expanded on and justified in Section VII, the RA has decided that this draft recommendation should be removed as it is considered unnecessary since the issue is being discussed in a separate consultation process.

## **VI.2 Response from Algonquin**

142. Algonquin’s response included the following comments on the proposed recommendations:

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

143. Algonquin’s response confirmed that it “supports the explicit acknowledgement that the RA’s function includes 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.**

144. In their response, Algonquin “recommends that the RA and the TD&R Licensee discuss the clarification of the timing of the reviews and completion date”.
145. This issue has already been discussed under paragraph 99. In addition to this, the RA welcomes the opportunity of further clarifying the timing of future reviews with the TD&R Licensee.
- (c) 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.**
146. Algonquin, in its response, “supports the exploration of an amendment to the legal framework to support the sale of electricity by community energy projects, if shown financially viable”. Algonquin recommends that projects should be assessed “on their merits including cost, capacity, impact on system, and rates structure”.
147. The RA notes Algonquin’s support and agrees that community projects should only be promoted when it is verified that they are the best possible framework to develop a particular project in a specific location, and should not have an adverse impact onto any group of electricity end-users.
- (d) 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.**
148. Algonquin, in its response, supports “the exploration of the latest developments in peer-to-peer trading and possible pilot schemes to determine financially viable projects. For both of these initiatives, Algonquin recommends inclusion of the TD&R licensee as a participant in the exploration and development of proposals as it is best situated to understand impacts on the system, including capacity, reliability, cost and rates structures.”
- (e) 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.**
149. Algonquin, in its response, supports “additional stakeholder consultation on this issue”.

- (f) **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.**

150. Algonquin, in its response, supports “additional stakeholder consultation on this issue”.

- (g) **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.**

151. Algonquin, in its response, is supportive “of the TD&R licence promoting a level-playing field and any additional clarity that could be provided around this responsibility. Likewise, it is supportive of the alignment between the TD&R licence provisions for procurement and the provisions for competitive procurement of Bulk Generation”.

152. The RA notes that Algonquin, overall, is agreeable to the approach proposed. As already outlined under paragraph 132, the RA considers that level-playing field competition can only be ensured through the establishment of a competitive procurement process for bulk generation which is transparent and fair to all bidders, whilst aiming to minimise costs of supply to end-users.

- (h) **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.**

153. Algonquin indicated in its comments that “the promotion of specific emerging renewable technologies does not appear necessary to meet policy objectives. However, Algonquin is supportive of encouraging innovation of emerging renewable technologies if this approach is desired by the RA and citizens of Bermuda”.

154. The RA agrees that the promotion of emerging renewable technologies such as wave energy is not necessary to meet short-term policy objectives, and as such, such technologies have not been selected in the 2019 IRP. However, future cost reductions and

technology improvements could impact future IRP updates, and new technologies could emerge as suitable alternatives to, for example, IRP plans to commission biomass co-generation plants at the 2030 horizon.

- (i) 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.**

155. Algonquin, in its response, is supportive “of the validation of the complaint handling process by the RA”.

- (j) 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.**

156. Algonquin, in its response, is supportive “of the recommendation”.

- (k) 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.**

157. Algonquin, in its response, highlighted that it “does not believe it is necessary for BELCO to be the sole owner and operator of commercial EV charging points, and is supportive of either option presented”.

158. Whilst the RA agrees that BELCO should not necessarily remain the “sole owner and operator of commercial EV charging points”, it wishes to highlight that this is the “de facto” situation resulting from provisions within the Electricity Act. Hypothetically, should such a commercial (in opposition to “free of charge”) EV charging point exist, then this would lead to the retail of electricity (between the EV operator and EV user). Unless the EV operator is the TD&R Licensee itself, then this would be in contradiction with Section 20 of the Electricity Act stating that “the Authority shall grant one TD&R Licence only”. This being said, paradoxically, there is no mechanism at the moment to incentivise the TD&R Licensee to fully play its “de facto” role of sole owner and operator of commercial EV charging infrastructure in Bermuda. In particular there is no mechanism to incentivise developing charging infrastructure or indeed for the TD&R Licensee to recover any infrastructure costs arising from such development.

159. The RA notes that Algonquin is agreeable to both options presented to bring further clarity to the current situation.

**(l) 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.**

160. Algonquin, in its response, highlighted that it “believes the realization of clean transport aspirations in Bermuda is important.”

**(m) 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.**

161. Algonquin, in its response, “supports the recommendation”.

### **VI.3 Responses from Sir John Swan and Lawrence M. Murphy**

162. Sir John Swan’s and Lawrence M. Murphy’s (combined) response included the following comments on the proposed recommendations:

**(a) 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.**

163. The response advocates that “the RA ‘s position (...) should be changed to encourage immediate legislative changes and streamline the implementation of the changes with suggested legislative language to favour private sector ownership over BELCO of the charging stations to create immediate competition in the marketplace and incentives to generate jobs in this sector.”

164. For clarity, the RA wishes to emphasise that this recommendation pertains to commercial EV charging points only, i.e. where EV users are asked to pay a specific EV charging price.

165. The RA considers that the response is effectively expressing support for option (ii) above. The RA continues to consider that option (ii) is valid and should be taken forward. At the same time option (ii) requires significant legislative and regulatory changes (as highlighted under item 158), the development of which will incur significant costs which, ultimately, would need to be recovered. In addition, it is not entirely clear at this stage that competition in the niche market of the operation of commercial EV charging points would materialise and have a significant impact on prices paid by EV charging users. Finally, the emergence of multiple sizeable EV charging facilities could ultimately have an impact on grid stability, and their development should be, at the very least, overseen by the TD&R Licensee.
166. The RA continues to believe that both options have potential merits and risks and, in that sense, will welcome further engagement with the Government and BELCO in order to identify the option that would be most beneficial to the Bermudian economy and have the most positive impact on electricity consumers.
- (b) 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?**
167. The response indicates that “to cover the full costs of the charging points, generally, the owner will factor into its business plan a way to recovers the costs of (a), (b) and (c).”
168. The RA agrees that this permutation would ensure cost-reflectivity of EV charging tariffs.
169. The response further indicates that “the private owner of a charging point may wish to treat the charge as a loss leader to attract other business”.
170. The RA accepts that the operation of “free of charge” EV charging points is not in contradiction of the provisions of the Electricity Act, and that such service should continue to be freely provided, as long as in line with legal and regulatory provisions.
171. Should the legal framework however be amended to allow for competition in the commercial EV charging sector, then the RA disagrees that the charge could be allowed to be treated as a “loss leader”. In this hypothetical configuration, EV charging operators should be treated as electricity retailers and the EV charging rate-setting framework should require that rates approved are fully cost-reflective.
- (c) 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)?**
172. The submission indicates that “the answers to” this question is “yes”.

## VII. RATIONALE FOR THE REMOVAL OF FORMER RECOMMENDATIONS

173. Having fully considered the responses discussed above, the RA has decided to no longer pursue some of the Preliminary Recommendations:
- (a) 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.
174. Public consultations in relation to the General Determination (GD) on Principles for Consumer Protection and the Sectoral Review were effectively run in parallel with one another. In light of the various changes made to the draft GD since this recommendation was first drafted, the RA is now satisfied that the final GD on Principles for Consumer Protection will fully enable the RA to fulfil its function (as per Section 12 of the RAA) to “promote the interests of the residents and consumers of Bermuda” without the need to articulate a systemic validation process. As a result, the recommendation is no longer relevant.
- (b) 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.
175. The RA’s current view is that public consultations in relation to the GD on Principles for Consumer Protection and the Sectoral Review were effectively run in parallel with the development of the Grid Code, and whose in-depth review and approval process is well under way. The RA is now satisfied that the final Grid Code will fully enable the RA to fulfil its function (as per Section 12 of the RAA) to “promote the interests of the residents and consumers of Bermuda” without the need to impose on BELCO a requirement to issue a specific guidance note to customers. As a result, this recommendation no longer applies. Nevertheless, the RA would encourage BELCO to translate provisions of the Grid Code, when approved, into terms as accessible as possible to the general public, for discussion with the RA and subsequent publication on their website.
- (c) Further, according to the requests from the public, the RA will keep exploring options for DSR which are in line with the IRP.
176. The RA very much continues to support DSR initiatives (including demand response and energy efficiency). Section 40 of the EA already makes provisions for the IRP to “consider (...) demand side resources (including demand response and energy efficiency) (...)”. The RA believes that those provisions are adequate and aims to continue to review IRPs in light of those but also that such ambitions do not constitute a legitimate motive for a specific Recommendation to be formulated under the scope of this Sector Assessment.

## VIII. FINAL RECOMMENDATIONS

177. Having fully considered the responses discussed above, the RA has formulated the following Final Recommendations by key area:

### Legal Framework – Primary Legislation

- (a) The functions of the RA (under Section 12 of the RAA) should be amended to include the additional function: “to promote the use of clean energy sources”.
- (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 when to be completed. More specifically, under Section 37 of the EA, the word “conduct” should be replaced by the word “complete”.
- (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) The merits of community energy schemes should be further considered, and the RA will discuss potential implementation options with the Government. In due course, the development of community energy schemes would require legislative amendments, but it would be premature to initiate those before validating the feasibility and support from the public for implementation options agreeable to the Government.
- (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. As an alternative approach, 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 discuss the merits and implications of both approaches with the Government and support the implementation of the selected approach.
- (f) It would be beneficial to further assess the merits and challenges of peer-to-peer trading in Bermuda. Although it might be premature to make specific provisions for this in the legal or regulatory framework at this stage, the RA recommends further exploring options for peer-to-peer trading in Bermuda, and initiating discussions with the Government to evaluate the merits and feasibility of encouraging BELCO to set up a pilot scheme, including the relevant legislative changes to enable this.

(g) The legal and licensing framework should be amended to reflect the following process for the preparation of IRPs:

1. *The public will be consulted on its desires for Bermuda's energy future.*
2. *The RA will set guidance for the development of the IRP, including objectives stipulated in Sector Policy and any relevant inputs which have emerged from public consultation.*
3. *BELCO will consult with the RA and relevant stakeholders on key assumptions and goals and will solicit and receive stakeholder input to inform various aspects of the IRP's development.*
4. *BELCO, in its expertise, will prepare the draft IRP.*
5. *The RA will comment on BELCO's draft IRP and BELCO will revise its draft IRP accordingly.*
6. *The public will comment on the revised draft IRP.*
7. *A public consultation will be held in which the public's comments and recommendations will be discussed by all parties.*
8. *Informed by the above stakeholder session and technical conference, the RA will request that BELCO make certain amendments to the IRP.*
9. *BELCO will draft and submit for approval a version of the IRP incorporating the RA's requested amendments.*
10. *If the amended draft is deemed the best approach to meeting the purposes of the EA and compliant with ministerial directions, the RA will approve the amended IRP.*
11. *In the event where the IRP does not fully meet Sector Policy objectives, the purposes of the EA, and/or where some of the key inputs or results are disputed, the RA is able to take over the responsibility of updating and finalising the IRP in concertation and close collaboration with BELCO. Upon validating that BELCO is agreeable with the conclusions from the updated IRP, the RA will then approve the amended IRP.*

Step 1 to 11 should be reflected under Part 8 of the EA (at a level of detail to be discussed with the Minister).

The "step-in rights" highlighted in Step 11 should be formally established under Section 14 of the EA.

## Regulations, General Determinations and Others

- (h) A stakeholder consultation should be conducted to test the adequacy (on technical and economic grounds) 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 need to have a dedicated (different) threshold depending on specific circumstances. The current individual threshold level would need to be reconsidered to ensure it enables 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. Depending on the outcome of those discussions, it may be appropriate to consult with the public and consider a revision of the 2018 License Threshold regulations.

## Regulatory Framework: Licensing

- (i) In parallel with Sector Documents (b) below, provisions for procurement currently in the TD&R Licence should be reviewed and aligned with the provisions for competitive procurement of Bulk Generation.
- (j) There is no mechanism at the moment to incentivise the TD&R Licensee to fully play its “de facto” role of sole owner and operator of commercial EV charging infrastructure in Bermuda. In particular, there is no mechanism to incentivise developing charging infrastructure or indeed for the TD&R Licensee to recover any infrastructure costs involved with such development. Considering the overwhelming support from the public for the development of commercial EV charging points, the RA will consult with the Government and with BELCO to consider the merits and challenges of two approaches:
  - (i) retain Section 20 of the EA as it stands but encourage BELCO to develop commercial EV charging through IRPs (under Section 40 of the EA) – or other mechanisms. For example, Section 40 of the EA could be amended to reflect that, alongside “all possible resources (...) and retirement of generation capacity”, the IRP should also consider the costs and benefits of developing commercial EV charging infrastructure in line with Government policy; or
  - (ii) amend Section 20 of the EA to make it possible to introduce competition in the commercial EV charging sector and introduce adequate regulatory instruments in this regard.
- (k) Should option (ii) be pursued, then EV charging tariffs should be fully cost-reflective.
- (l) 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

- (m) Given that the IRP is expected to be updated every 5 years based on the latest available information, sector policies should include only a small number of key long-term targets. Furthermore, in light of the analysis carried out in the 2019 IRP, there should be a resolution of the existing discrepancies between the Electricity Sector Policy and the Fuels Policy and their role of fossil fuels in Bermuda's energy outlook
- (n) 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 and support for implementing EV charging points, the RA will seek policy advice on this matter from the Government.
- (o) Emerging renewable technologies such as wave energy could play an important part in Bermuda's decarbonisation path, but their level of maturity at present is not sufficient to justify their inclusion in Bermuda's IRP. Throughout the process of future IRP updates, it will be crucial to monitor the development of such emerging power generation technologies and assess the long-term suitability for Bermuda should they ever form part of the least-cost path. In due course, this suitability could be validated via the undertaking of a small-scale pilot project – which would need to be allowed by way of waiver and/or relevant legislative amendments, or via a Self-Supply licence. The RA will engage with the Government in this regard.
- (p) In addition, international experience shows that there are many benefits in actively promoting the deployment of innovative technologies in the transmission and distribution subsectors (e.g. smart-grid technologies, smart metering). The RA will consider the approval of capital development programs within future retail rate case submissions in light of this.

### Sector Documents

- (q) A specific regulatory instrument should cover 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 Bulk Generation Procurement Guidelines in this respect.