



THE BERMUDA NATIONAL TRUST

To protect and promote Bermuda's unique natural and cultural heritage forever.

28 November 2018

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

Subject: Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Dear Ms Lister,

I am writing to submit a response to the Regulatory Authority of Bermuda's consultation on IRP Bulk Generation Proposals.

The Bermuda Better Energy Plan (BBEP), presented by BESolar and Etude, provides insight into how Bermuda's energy portfolio can be diversified to include advancing renewable technologies.

In line with its mission of conserving Bermuda's natural environment and promoting sustainable development, the Bermuda National Trust has been a proponent of cleaner carbon emissions for decades. The Trust supports the use of technologies which lead to clean air and reduce the risk of climate change while being economically sustainable.

It is therefore essential for Bermuda to continually seek cleaner power generation to reduce carbon emissions and to ensure affordable power for the future.

The BBEP is an alternative Integrated Resource Plan for Bermuda that has been presented to the Regulatory Authority. Renewables can reduce the global and local environmental impact of power generation. The BBEP also offers a flexible approach to power generation within which an Integrated Resource Plan can be modified as and when advances in technology allow for changes in approach.

This is something that we feel the BELCO IRP does not effectively address. BELCO's IRP provided minimal scope for the development of renewables, choosing instead to focus on power generation through Liquefied Natural Gas (LNG), a volatile and hazardous fossil-fuel resource. Whilst burning LNG would reduce carbon emissions compared to burning traditional fossil fuels, there has been no indication as to the lifespan of this technology. LNG prices are volatile and a new pipeline and degasification facility would have to be built at great expense in which the cost of the investment would take many years to recover. This approach also inhibits the ability of LNG to be integrated



with other resources because it becomes more expensive the less it is used. As a result, Bermuda could find itself bound to an obsolete and environmentally unsound technology at the same time that renewable technologies, including cheaper battery storage, advance and become more economically viable for Bermuda.

The Trust believes that the BBEP presents a plausible and dynamic plan for Bermuda's power generation. The BBEP complies with directives given to the RA by the Minister and the Electricity Act 2016 much more effectively than the BELCO IRP. Least-cost, reliable electricity supply through various resources has been fully discussed within the BBEP. It is the only proposal that effectively seeks clean, safe and sustainable sources of electricity supply. Diversifying Bermuda's energy portfolio also allows an opportunity for non-discriminatory interconnection to transmission and distribution systems, as directed by the Electricity Act 2016. By only including currently used technology, the BBEP provides plausible insight into Bermuda's renewable energy future. The methodology used within the BBEP is clear and detailed, with all facts and figures included in the appendices.

The Bermuda National Trust fully supports the Bermuda Better Energy Plan and hopes that the Regulatory Authority will take these comments, along with others from the public, into consideration when making its decision.

Sincerely,

Lawrence A. Doughty
Conservation Officer

Cynthia and Eleanor Cox
Ivy Cottage
71 Ord Road
Paget PG03

20 November 2018

Ms. Monique Lister
Regulatory Authority
Craig Appin House
8 Wesley Street, First Floor
Hamilton

Reference: Response to Consultation Document: Belco and BE Solar Plans

Dear Ms. Lister,

Thank you in advance for considering this opinion. Kindly note that every letter you receive represents hundreds of the "silent majority" who do not have the time or the wherewithal to compose and send a letter, but who believe that sticking to fossil fuels is not the way forward.


Please consider our letter enthusiastic support for BE Solar's Bermuda Better Energy Plan over the Belco Plan. Indeed, the Belco Plan, relies nearly 100% on fossil fuels which pollute and whose costs are volatile and high. The Belco Plan has its head in the sand and does not have the best interest of Bermuda for the long-term.

What kind of example do we wish to set for our children and future generations? What kind of example do we wish to set for Caricom and our other neighbours who are pursuing energy sources such as solar and wind?

Further, the OpEd piece by Sir John Swan and Mr. Michael Murphy in the Royal Gazette today points out that Belco have ignored and shelved viable proposals for their own pet fossil fuel plan which will mean even higher costs and no self-sufficiency.

Bermuda deserves better.

Yours sincerely,


Cynthia and Eleanor Cox

8 Devon Point Lane
Devonshire
Bermuda FL 05
Tel: 535 7160

Email: mark.chudleigh@kennedyslaw.com

20 November 2018

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

Re: Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Dear Ms Lister,

Thank you for allowing me to submit a response to the Regulatory Authority of Bermuda's consultation on IRP Bulk Generation Proposals.

I have grave concerns about the plan submitted by BELCO, which is singularly lacking in ambition and, particularly bearing in mind Bermuda's position as a wealthy country, is also highly irresponsible in light of the environmental issues that our planet is facing as a result of the use of fossil fuel. Surely, we can take a more enlightened approach to fulfil our energy needs?

Moreover, BELCO's plan is one that makes little financial sense given the huge cost to Bermuda of importing fuel, be it oil or natural gas, and the uncertainty over continued supply and pricing.

There have been huge strides in recent years as regards the efficiency and cost of solar and wind generated power. In Bermuda we are blessed with sun on almost every day of the year and experience modest to strong winds on most days. Given these natural advantages it makes no sense at all to pursue an outdated energy policy based on imported, expensive fossil fuels.

Sure there will be some major infrastructure costs involved with providing the required power generation from wind and solar energy. However, once the infrastructure is in place (a process that will generate employment for many Bermudians), the cost, and balance of payments, benefits will become immediate and dramatic. There will also be significant local employment opportunities (which can be provided in an environment that, unlike the current one, fosters competition) created by the need to maintain and to improve the wind and solar energy infrastructure.

BELCO has a long record of abusing its monopoly, extracting huge profits through its parent company, but doing little to maintain or to improve the energy infrastructure or to proactively seek ways to reduce the cost of electricity to consumers. In an island that relies on its natural beauty to attract tourists (as well as investors) and is subjected to a high degree of hurricane activity, it is remarkable how much of the grid remains above ground in the form of unsightly power lines (and I would suggest that your plan should provide for a 20 year programme to have power lines put underground). Quite simply, BELCO cannot be trusted with the future of our energy needs and must to be brought under control as a matter of national security.

I would therefore urge you to reject BELCO's plan and to implement a plan along the lines of the Bermuda Better Energy Plan submitted by BE Solar.

Thank you for taking my views into account. I wish you strength and courage in making this momentous decision on behalf of Bermuda.

Yours sincerely,

A handwritten signature in black ink, consisting of a vertical line followed by a large, sweeping curve that ends in a small flourish.

Mark Chudleigh

Gail L. Geiger

21 Tanglewood Road
Paget, PG03
441 236-6881
gg@northrock.bm

29th November 2018

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

By Hand

Subject: Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Dear Ms Lister:

I am writing to submit a response to the Regulatory Authority of Bermuda's consultation on IRP Bulk Generation Proposals.

The choices for generating future energy for the people of Bermuda are two: either the BELCO Plan dated February 2018, relying almost exclusively — 85 per cent to 95 per cent — on fossil fuels to generate our electricity over the next 20 years or the more recently released *Bermuda Better Energy Plan*, projecting use of 64 per cent clean renewables of wind and solar power by the year 2035.

Indisputable facts on Climate Change

First, the atmospheric concentration of carbon dioxide has risen steadily with the use large quantities of fossil fuels since the Industrial Revolution. ~~CO2 is accumulative and has now reached level in the atmosphere that have never been seen in the history of human civilization.~~

Second, carbon dioxide is known to be a greenhouse gas. Greenhouse gases in the atmosphere are responsible for the greenhouse effect, warming of the earth surface, it only stands to reason that if the atmospheric concentration of greenhouse gases (CO2) increases, then so should the surface temperature of the earth.

Third, the average surface temperature of the earth is rising.

Fourth, the world's sea levels are rising. As water warms, it expands. And as the temperature increases, glaciers melt. Both factors add to the sea level, which has already risen by four to eight inches. This results in loss of coastline, and ultimately the loss of some islands...Bermuda??

I SUPPORT the Bermuda Better Energy Plan submitted by BE Solar!

First, the plan is the most consistent with the purposes of the Electricity Act and ministerial directions for the least-cost provision of reliable electricity. ~~It provides clear and convincing evidence that renewable energy can deliver a substantial reduction in carbon emissions while stabilising energy costs through clean renewable energycombating climate change.~~

Second, the technology employed is in commercial use in other jurisdictions.

Third, was developed using detailed and transparent assumptions and methodologies.

I CANNOT support the BELCO plan! It does not combat climate change.

First, fossil fuels are harmful to the environment. The burning of fossil fuels contributes to carbon dioxide emissions, which is a huge contributor to the greenhouse effect and climate change.

Second, CO2 isn't the only gas released when fossil fuels are burned. Other harmful gases such as nitrogen and sulfur oxides are released causing air pollution. Bermuda has many children and adults who suffer from asthma and other respiratory problems which can be affected by air pollution.

Third, fossil fuels aren't sustainable as we are rapidly running out of fossil fuels and the cost of fossil fuels will only increase.

Fourth, The BELCO Proposal will burden the people of Bermuda with tens of thousands of dollars in extra cost and ~~threatened our health.~~

It is time for Bermuda to start investing in more sustainable methods of energy for the economic and physical health of the people.

I feel strongly that renewable energy holds the key to combating climate change.

First, Renewable Energy combats climate changes as it creates NO direct greenhouse gas emissions

Second, decreases pollution thereby reducing threats to our health.

Third, Solar and wind are reliable energy sources which are renewable and will never run out

Fourth, prices will stable over time.

As a scientist (biologist) I've always been committed to "saving" the environment (recycling, reducing energy use, reducing my carbon foot print). So, it's only logical that I would want to reduce the emission of CO2 to the environment via renewable energy and want sustainable energy for future generations.

Let's not miss an opportunity to reduce global warming and climate change. It's time to make the change from relying solely on energy generated from the burning of fossil fuels and make the change to the way of the future, to renewable energy (solar and wind).

Important action must be taken NOW.

Thank you for your time in reviewing my response, I look forward to learning of the final outcome of the IRP consultation process.

Yours sincerely,

Gail Geiger

A handwritten signature in cursive script that reads "Gail Geiger". The signature is written in dark ink and is positioned below the printed name "Gail Geiger".

From: [Aileen Morrison](#)
To: [Electricity](#)
Subject: The Better energy Plan.
Date: Thursday, November 29, 2018 3:01:21 PM

To Whom it might concern.

I am writing to implore you to consider the Better Energy Plan... something that should have been done years ago as we have had the technology it just needed to be utilised. Fossil fuels are like burning money and they damage the environment.

We have been blessed on this Island with plenty of sun and wind....surely it only makes sense to utilise these free gifts. Come on Bermuda....stop doing this on Bermuda Time....lets make it happen now and leave our Children and Grandchildren a gift of a healthy environment instead of a huge debt. We are so behind the rest of the world in this.

Please act on the Better Energy Plan...I Thank you for reading this.

Aileen Morrison.

From: [Zander Kirkland](#)
To: [Electricity](#)
Subject: Response to Consultation Document: Comments on IRP Bulk Generation Proposals
Date: Friday, November 30, 2018 2:44:25 PM

Dear RAB team,

I am writing to let you know a sustainable and potent energy strategy is important for me and the current plan falls far short of where it needs to be. I hope the board takes my input along with other concerned citizens into consideration when thinking about Bermuda's future.

Much deeper consideration must be taken for an alternative, renewable strategy for this 20-year plan being thought through.

We need a strategic, long-term plan that incorporates sustainable energy sources at a scale that matters to the grid -- It is reported that more than 60% of the island's electricity needs can be met with local renewable sources (solar/wind). We do not want to continue burning dirty Venezuelan diesel. What happens if global instability makes this energy source non-viable? We have no control. Sustainable energy is one of the few things Bermuda can actually produce at a local economic scale and help us wrest more control of a vital interest (energy security).

Further, as one of the richest-per-capita islands in the Atlantic, we can afford to be thought leaders in the sustainable energy sector. We should not aim to be the lowest common denominator, it is our duty as GDP/per citizen leaders to DO MORE. We should aim to follow in the likes of the Hawaiiin island chain (similar high standard of living, but also have the same high energy costs associated with any isolated island archipelago).

It is evident from the Bermuda Better Energy Plan that proven technology does exist to provide Bermuda with a better energy mix, so I respectfully request that the RAB consider their plan.

Please confirm receipt of this email.

Thank you,
Alexander D Kirkland

Alexandra Stewart
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UK

a.stewart87@hotmail.com

29th November, 2018

Dear Ms Lister,

I wanted to write to you to show my support for the Better Energy Plan. While I am currently living abroad, I have every intention of returning to Bermuda once I have gained professional qualifications as a teacher.

I believe it is imperative to throw my support behind the greater inclusion of sustainable energies into Bermuda's energy infrastructure not only because of the financial benefits of increased independence from imported fuels, but because it is an issue of global as well as local importance. Having read the recent Intergovernmental Panel on Climate Change Special Report (October 2018) on the effects of global temperatures increasing by only 1.5 degrees Celsius, I am aware of, and want to outline in this email, just how vulnerable Bermuda is against the forces of climate change.

Our already fragile coral reefs, a source of income for many local businesses, renowned world-wide for their beauty and research potential, a habitat for countless diverse species and our front-line defence against increasingly destructive and powerful hurricane systems, are highly threatened. They will be irreversibly damaged should steps not be taken to combat increasing temperatures caused by ineffective energy usage.

Bermuda has a proud heritage of championing environmental causes, from passing the first conservation laws in the New World in an effort to protect dwindling cahow populations, to more recent efforts to replant cedar trees and rejuvenate turtle breeding grounds. We have innovated ways of obtaining water using local materials. We are resourceful and capable- our small size should not be an excuse for complacency when we are so at risk.

Current trends are simply not doing enough to combat the risks we face- of more extreme weather, of rising sea levels, of biodiversity drop-off. We need to become world leaders in energy efficiency and the first step is showing our commitment through legislature.

I have included information from the IPCC Special Report below as well as a link to the whole report below. I thank you for your time and consideration.

Sincerely,

Alexandra Stewart

IPCC Special Report: http://ipcc.ch/pdf/special-reports/sr15/sr15_spm_final.pdf

from the IPCC report, October 2018:

B.4.2 Coral reefs, for example, are projected to decline by a further 70–90% at 1.5°C (high confidence) with larger losses (>99%) at 2°C (very high confidence). The risk of irreversible loss of many marine and coastal ecosystems increases with global warming, especially at 2°C or more (high confidence). [p.10]

B.6.2 Some vulnerable regions, including small islands and Least Developed Countries, are projected to experience high multiple interrelated climate risks even at global warming of 1.5°C (high confidence). [p.16]

B.4.3 The level of ocean acidification due to increasing CO₂ concentrations associated with global warming of 1.5°C is projected to amplify the adverse effects of warming, and even further at 2°C, impacting the growth, development, calcification, survival, and thus abundance of a broad range of species, for example, from algae to fish (high confidence).[p.11]

D.7.1 Partnerships involving non-state public and private actors, institutional investors, the banking system, civil society and scientific institutions would facilitate actions and responses consistent with limiting global warming to 1.5°C (very high confidence). [p.25]

D.7.2 Cooperation on strengthened accountable multilevel governance that includes non-state actors such as industry, civil society and scientific institutions, coordinated sectoral and cross-sectoral policies at various governance levels, gender-sensitive policies, finance including innovative financing, and cooperation on technology development and transfer can ensure participation, transparency, capacity building and learning among different players (high confidence).[p.25]

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

30 November 2018

Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Dear Ms Lister,

I am writing to submit a response to the Regulatory Authority of Bermuda's consultation on IRP Bulk Generation Proposals.

I support the Bermuda Better Energy Plan submitted by BE Solar, for the following reasons:

In the light of IPCC's most recent report on climate change, we absolutely must have a plan that utilises renewable energy sources and provides a substantial reduction in carbon emissions. In my opinion, it would be backward thinking and shameful to approve a 20 year plan of heavy reliance on fossil fuels such as the Belco plan.

Furthermore, the Bermuda Better Energy Plan is in line with the Government's objective stated in the recent Speech from the Throne, to reduce energy costs and increase the uptake of renewable energy.

The world is changing and we need too so let's put Bermuda on the map with the other countries and together act on climate change!

Thank you for your time in reviewing my response, I look forward to learning of the final outcome of the IRP consultation process.

Yours sincerely,

Mrs. Andrea Cahill

Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Andrea Lee Schmidt
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Monique Lister
Regulatory Authority of Bermuda
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November 30th 2018

Dear Ms. Lister,

I hope this letter finds you well. Below is my response to the consultation document "Comments on IRP Bulk Generation Proposals". I support the Bermuda Better Energy Plan submitted by BE Solar.

This letter will address the consultation questions provided in the IRP Alternative Proposals Document from October 2nd 2018.

1. Are there any provisions in the Alternative Proposals that should be modified? Please include any reasoning and evidence in your answers.

Not to my knowledge.

2. Do you have any comments on whether including the Alternative Proposals in the IRP would result in an electricity supply that is more consistent with the purposes of the EA and Ministerial directions (e.g. least-cost provision of reliable electricity)?

The Bermuda Better Energy Plan is the most consistent with the purposes of the Electricity Act and ministerial directions for the least-cost provision of reliable electricity. The plan provides clear and convincing evidence that renewable energy can deliver a substantial reduction in carbon emissions while stabilising energy costs through clean renewable energy. This plan has been developed using detailed and transparent assumptions and methodologies.

Below I have highlighted purposes of the 2016 Electricity Act found on page 6 of the selfsame document which are consistent with a move away from fossil fuels and toward renewable resources (as outlined in the Bermuda Better Energy Plan).

The Bermuda Better Energy Plan will 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 (Purpose (a), EA

Response to Consultation Document: Comments on IRP Bulk Generation Proposals

2016). This plan promotes the use of cleaner energy sources and technologies, including alternative energy sources and renewable energy sources (such as wind and solar) which will always be present in Bermuda (Purpose (c), EA 2016). The use of local resources also ensures the reliability and sustainability of said resources (Purposes (e),(f), EA 2016).

3. Do you have any comments on the technology proposed in the Alternative Proposals, including whether such technology is in commercial operation in another jurisdiction?

The Bermuda Better Energy Plan uses technology that is in commercial use in other jurisdictions.

4. Do you have any additional views on the assumptions, assessment methodology, and conclusions set out in the Alternative Proposals?

I want to highlight the pivotal moment that Bermuda is at in determining its future by selecting the infrast

Bermuda will be making a decisive, forward thinking step towards reducing its carbon emissions by choosing the BE Solar Plan. The importance of this cannot be overstated given the recent IPCC report released this year. Bermuda relies on tourism and international business for its economy. The BE Solar plan will place Bermuda in line with the care and keeping of its natural resources which promotes its tourism industry. Keeping the BELCO plan will be a step backwards for Bermuda in terms of international business and the care for its environment. The BE Solar plan is an investment in Bermuda's, and the world's, future.

Thank you for reading and considering my response,

Sincerely,

Andrea Lee Schmidt

From: [Jane and Andrew Cooper](#)
To: [Electricity](#)
Subject: Response to Consultation Document: Comments on IRP Bulk Generation Proposals
Date: Thursday, November 29, 2018 10:55:29 PM

Cedar Lawn
45 Pitts Bay Rd
Pembroke HM 06,
November 29, 2018

Dear Ladies and Gentlemen of the Authority,

I support the Bermuda Better Energy Plan. Clearly, developing an energy generation strategy that combines **increasing** use of Renewable sources and **reduced dependence** on Fossil Fuels can benefit Bermuda in several ways:

- Solar Power and Offshore Wind Power are both mature technologies that have grown more efficient over time. Solar panels & wind turbines have a lifespan of 25-30 years, but the “fuel” with which they generate electricity (sunlight & wind) are free, albeit variable.
- The price of Liquid Natural Gas fluctuates and could rise in the future, something Bermuda has no control over.
- Liquid Natural Gas, although about 33% cleaner than the oil that Belco currently burns, has a significant Carbon footprint, which contributes to global Climate Change, not to mention local air pollution, which can exacerbate respiratory conditions such as Asthma & COPD.

In 2014 the IPCC released a Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN).

Below is an excerpt from that report:

“All societies require energy services to meet basic human needs (e.g., lighting, cooking, space comfort, mobility, communication) and to serve productive processes. For development to be sustainable, delivery of energy services needs to be secure and have low environmental impacts. Sustainable social and economic development requires assured and affordable access to the energy resources necessary to provide essential and sustainable energy services. This may mean the application of different strategies at different stages of economic development. To be environmentally benign, energy services must be provided with low environmental impacts and low greenhouse gas (GHG) emissions. However, 85% of current primary energy driving global economies comes from the combustion of fossil fuels and consumption of fossil fuels accounts for 56.6% of all anthropogenic GHG emissions. Renewable energy sources play a role in providing energy services in a sustainable manner and, in particular, in mitigating climate change. This Special Report on Renewable Energy Sources and Climate Change Mitigation explores the current contribution and potential of renewable energy (RE) sources to provide energy services for a sustainable social and economic development path. It includes assessments of available RE resources and technologies, costs and co-benefits, barriers to up-scaling and integration requirements, future scenarios and policy options. GHG emissions associated with the provision of energy services are a major cause of climate change. The IPCC Fourth Assessment Report (AR4) concluded that “Most of the observed increase in global average temperature since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.” Concentrations of CO₂ have continued to grow and by the end of 2010 had reached 390 ppm CO₂ or 39% above preindustrial

levels.

The long-term baseline scenarios reviewed for the AR4 show that the expected decrease in the energy intensity will not be able to compensate for the effects of the projected increase in the global gross domestic product. As a result, most of the scenarios exhibit a strong increase in primary energy supply throughout this century. In the absence of any climate policy, the overwhelming majority of the baseline scenarios exhibit considerably

higher emissions in 2100 compared to 2000, implying rising CO₂ concentrations and, in turn, enhanced global warming.

Depending on the underlying socioeconomic scenarios and taking into account additional uncertainties, global mean temperature is expected to rise and to approach a level between 1.1°C and 6.4°C over the 1980 to 1999 average by the

end of this century.

To avoid adverse impacts of such climate change on water resources, ecosystems, food security, human health and coastal settlements with potentially irreversible abrupt changes in the climate system, the Cancun Agreements call for limiting global average temperature rises to no more than 2°C above preindustrial values, and agreed to consider limiting this rise to 1.5°C. In order to be confident of achieving an equilibrium temperature increase of only 2°C to 2.4°C, GHG concentrations would need to be stabilized in the range of

445 to 490 ppm CO₂eq in the atmosphere.

There are multiple means for lowering GHG emissions from the energy system, while still providing desired energy services. RE technologies are diverse and can serve the full range of energy service needs. Various types of RE can supply electricity, thermal energy and mechanical energy, as well as produce fuels that are able to satisfy multiple energy service needs. RE is any form of energy from solar, geophysical or biological sources that is replenished by natural processes at a rate that equals or exceeds its rate of use. Unlike fossil fuels, most forms of RE produce little or no CO₂ emissions."

Kind regards,

Andrew Cooper

Tel: 295-5757

Email: accooper@gov.bm



Virus-free. www.avast.com

From: [Andrew Marsh](#)
To: [Electricity](#); stratton@besolar.bm; stratton.gwh@gmail.com
Subject: Letter to Committee RAB
Date: Friday, November 30, 2018 1:27:39 PM
Importance: High

Dear RAB Committee members,

Through your committee, Bermuda is about to make a critical decision on how electricity will be generated in the future.

I am writing this letter in the hope that your committee, as a representative and independent body of Bermuda and its citizens, fully embrace the merits of the Bermuda Better Energy Plan.

I, among many others in the community, have expressed deep concern about your reliance on only considering the BELCO plan, which, constitutes a major conflict of interest in its own right, between what is good for Bermuda and what's good for BELCO shareholders, but also because BELCO management and Board have clearly demonstrated its failure to plan for anything over the last several decades.

Further to this point, BELCO have knowingly allowed decades of deteriorating infrastructure to stack up on their watch, as a provider and utility fiduciary, to the detriment of the public interest. They have done this by prioritizing the shareholders interest over the interest of Bermuda by inappropriately deploying Use of Cash on their balance sheet towards paying dividends and NOT towards capex and infrastructure reinvestment. Their record is a clear demonstration of their inability to provide Bermuda with any credible plan.

Importantly, research shows that BELCO's plan by itself is inaccurate and economically misleading.

In doing the economic maths, the breakeven cost of bringing in LNG to the island is a population of 300,000, which is 5 times larger than Bermuda's current population. That leaves the island uncompetitive. Lowering the breakeven cost of energy is critical to Bermuda's future economic success.

In sum, as Bermuda's utility fiduciary and independent Body, your committee has the important task of enabling critical decisions concerning Bermuda's energy and economic future. For the portion of the islands energy supported by conventional fuel, it is possible with your support, in fact be carbon neutral using NET Power technology (<https://qz.com/1292891/net-powers-has-successfully-fired-up-its-zero-emissions-fossil-fuel-power-plant/>) that delivers zero carbon emissions at zero additional cost, using the recent technology provided by NET Power. If you wish to embrace this technology, I am happy to introduce you the CEO of Net Power, Bill Brown, for your further consideration and integration.

I, and my family members, hope that you consider favorably the Bermuda Better Energy Plan Report to be enacted in concert with a minimal degree of reliance on Belco but also include the Net Power technology (zero emissions, no extra cost).

Best regards,
Andrew Marsh

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

30 November 2018

Subject: Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Dear Ms Lister,

I am writing to submit a response to the Regulatory Authority of Bermuda's consultation on IRP Bulk Generation Proposals.

I ran in the general elections of 2012 and 2017 for the OBA in Constituency 17, Pembroke Central. The BELCO plant sits in the middle of that constituency. In 2012 BELCO executives briefed members of the OBA on the company's future capital plans and the need to replace aging assets. I also spent hours speaking to residents who live near the main BELCO plant. They talked about their opposition to development of the North station site (across from the old Berkeley campus).

This consultation process has allowed the island as a whole to consider alternatives to our default power generation paradigm. In many ways, Bermuda has been lucky to have a private power company from the start. Nationalized power generation has a long history of inefficiency and/or corruption in other parts of the world. However, while BELCO has long been considered a natural monopoly, a few factors have changed that established view:

- Technology
- Geography
- Cost
- Global Warming

In short:

- Renewables have never been more cost effective and their efficiency curves continue to improve
- Bermuda's location provides ample sunshine and adequate winds
- Our isolation and economy have forced customers to pay high prices for electricity, so competing solutions have an easier target to match

- Finally, fossil fuel use drives global warming. We have a moral imperative to reduce our use of fossil fuels. In addition, there is a risk that in the near future, power producers worldwide will be forced to account for and perhaps pay for the externalities of such use.

I have reviewed both the BELCO IRP proposal and the plan submitted by BE Solar.

I have a few concerns about the BELCO plan:

- The plan relies on an LNG regasification terminal. This capital project introduces significant risk, and intensifies infrastructure construction on the island. If we adopt LNG, then we will likely forego the adoption of more modern technologies.
- Under the BELCO plan, the utility's monopoly status is solidified, and there are few options for diversification. A model with greater distributed generation would make the island more resilient.

I prefer the Bermuda Better Energy Plan submitted by BE Solar. Their plan:

- Integrates technology that is in commercial use in other jurisdictions.
- Provides clear and convincing evidence that renewable energy can deliver a substantial reduction in carbon emissions while stabilising energy costs through clean renewable energy.
- Creates clear incentives to dramatically improve energy efficiency on the island
- Finally, it does not create roadblocks to the adoption of rapidly improving renewable technologies.

Thank you for your time in reviewing my response, I look forward to learning of the outcome of the IRP consultation process.

Yours sincerely,


Andrew Simons

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

20 November 2018

Subject: Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Dear Ms Lister,

Taken from the Regulatory Authority Act 2011 are the following principal functions of the Regulatory Authority,

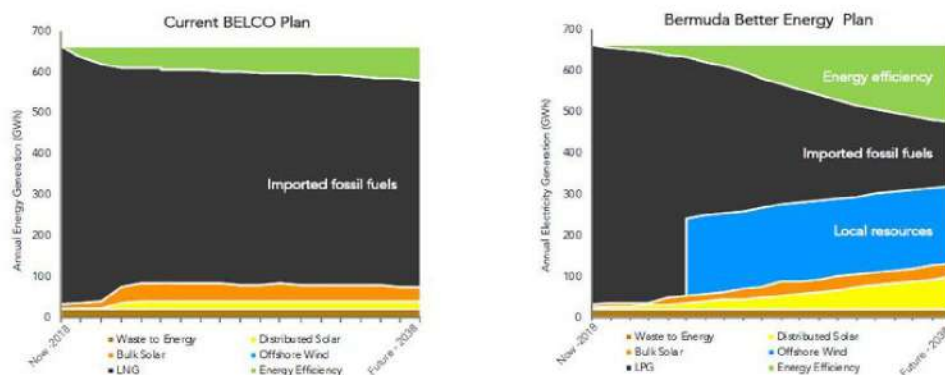
Principal functions

12 The principal functions of the Authority, in relation to any regulated industry sector, are—

- (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.

[Section 12 effective 11 July 2012 by BR 49 / 2012 para. 2]

Please keep this in mind as you read through my response. I am writing to submit a response to the Regulatory Authority of Bermuda's consultation on IRP Bulk Generation Proposals. Please refer to the following figure showing the proposed plans,



I support the Bermuda Better Energy Plan submitted by BE Solar, as this plan:

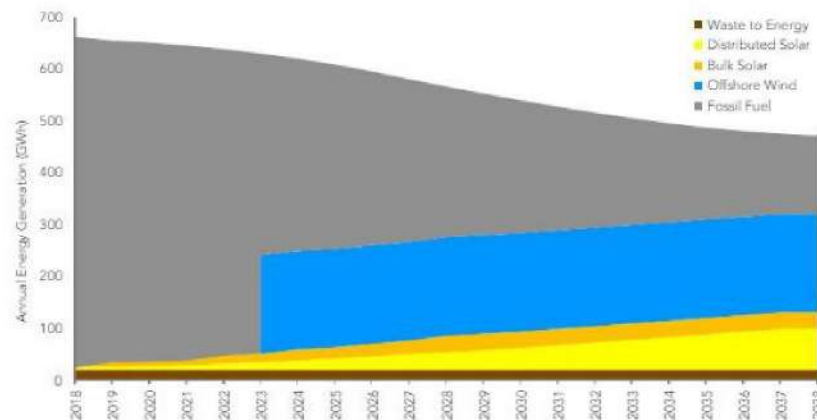
- Is the most consistent with the purposes of the Electricity Act and ministerial directions for the least-cost provision of reliable electricity. The plan provides clear and convincing evidence that renewable energy can deliver a substantial reduction in carbon emissions while stabilising energy costs through clean renewable energy.
- Uses technology that is in commercial use in other jurisdictions.
- Has been developed using detailed and transparent assumptions and methodologies.
- When deciding to proceed with Bermuda's energy future, we must proceed with a plan that works for the country of Bermuda and also benefits them in more ways than solely providing energy.
- Personally, I have spent much of my post secondary education preparing for a career in renewable energies, particularly solar. Upon my recent graduation I have returned to the island to find that there are no jobs available with renewable energy. While there are currently no open positions with any solar based company. Looking at the current BELCO plan the amount of solar jobs will actually be cut off within 5 years to absolutely no expansion leading to close to zero *persons employed* in the solar industry. They will completely get rid of an entire industry of jobs. The Bermuda Better Energy plan gives a chance to expand the amount of jobs available on the island, in particular for millennials and like aged citizens. We are seeing a generation that has been educated on sustainability and accountability when it comes to waste. Not only would the better energy plan create more opportunity for engineers and electricians with solar, it would introduce other renewable employment fields, such as wind and efficiency technicians
- A dependance on LNG sourced energy means that Bermuda and Bermudians depend on one fuel source, one energy provider and one source of energy employment. Ultimately, the BELCO plan seeks to eliminate any *competition*. Engineers looking to make a difference on the sustainability of our energy supply and the sustainability of their employment will now have only one place to go. Reading the following articles gives an outlook on how BELCO is currently operating and performing in their dominance of the energy industry,
 - <http://www.royalgazette.com/local-business/article/20181102/ascendant-earnings-hit-by-falling-demand>
 - <http://bernews.com/2018/11/belco-impacted-by-rapidly-falling-demand/>
 - <http://bernews.com/2018/10/belco-cannot-guarantee-full-electricity-supply/>
 - <http://www.royalgazette.com/labour/article/20181022/burt-brokers-talks-to-end-belco-dispute>
 - <http://bernews.com/2018/10/four-senior-executives-depart-from-ascendant/>

As a young Bermudian it is being proposed that my future employment opportunities in my chosen career path are being limited so greatly. Even if they

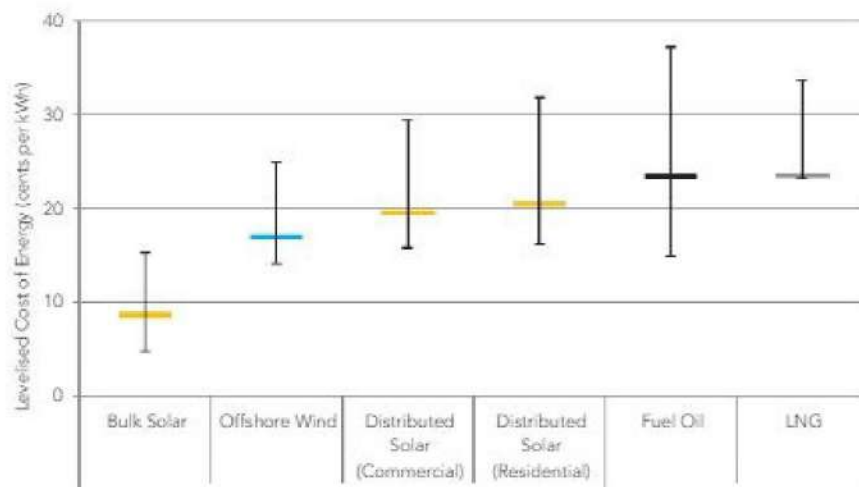
had LNG generators the reliability and quality of power will still be threatened by similar events under the current organization of distribution.

- Looking at the below figure,

INTEGRATED RESOURCE PLAN CONSULTATION



- The better energy plan will take into account an increasing installation of distributed solar. This is important because it encourages those who can be energy independent utilize their capital and resources to invest in their island. The lifespan of solar panels is roughly 25 years. To make that kind of investment is not only profitable over the life span, it adds incentive to retain citizens on the island. Those investing in Bermuda will be rewarded for doing so.



- From the above figure, there is a large range residents and businesses can pay a lower cost for their energy than the cheapest cost for LNG. With the reducing costs of solar technology, more citizens will be able to invest in their own energy independence, improving their households functionality overall. With battery storage, Bermudians will become more resilient to natural disasters and have a greater range of energy use by time and amount.

- To point out, the fuel source for renewable energy is harnessed from our local environment as opposed to being imported. Bermuda must begin to do more for itself and rely less on importation. It will build a stronger economy and standard of living to add protection to the value fluctuations of finite resources. Wind and sun operate in perpetuity.
- With renewable energy being harnessed from the environment Bermuda could begin to make strides in modern technology and *innovation*. Electric cars can become practical storage devices for energy. Tesla has been revolutionary for electric powered vehicle technology and many other automotive companies are coming out with their own electric models. Bermuda can create a system that aligns with the future trends of electric vehicles. With more electric cars on Bermudas roads, it will increase our faltering demand for energy. Combined with renewable energy, particularly solar, there is a possibility to revolutionize Bermudas driving culture with safer, cleaner automotive options. If we only produce energy from LNG, we will just be moving car emissions from the car exhaust to BELCOs exhaust. Proceeding with BELCOs plan lowers the viability and impact of the electric vehicle revolution.
- Please take close consideration of Bermuda Better Energy Plan Report and move forward in a way that is best for Bermuda.

Thank you for your time in reviewing my response, I look forward to learning of the final outcome of the IRP consultation process.

Regards,

Andrew White

From: [Annabel Williams](#)
To: [Electricity](#)
Subject: Stopping 20 year contract with fossil fuels
Date: Friday, November 30, 2018 1:29:21 PM

To whom this may concern

I am emailing to say I support a better energy plan for Bermuda to stop a 20 year contract with fossil fuels. I think it is extremely important to bring this to an awareness and create better future for Bermuda.

Many thanks,

Annabel Williams

Sent from my iPhone

From: [Anne Smith](#)
To: [Electricity](#)
Subject: Bermuda future energy - OUR environment!
Date: Monday, November 26, 2018 12:41:16 PM

Dear Sirs

I urge you to use your utmost powers to ensure that Bermuda acts socially responsible and in line with the rest of the world. This country can no longer bury its head in the sand and believe it is in some sort of paradise that can never be spoilt.

If this article is all true and the BELCO directors have been behaving in such a manner, it is a total disgrace, and they should all be named and shamed.
<http://www.royalgazette.com/opinion/article/20181120/ten-days-to-make-our-voices-heardon-future-of-bermudas-energy>

Please, please do the right thing, and put Bermuda on the path to help it become a progressive country, not a backward one!

Thanks and regards. Look forward to hearing good news on this matter.

Anne

Anne Smith

Hideaway, 4 Windwood Crescent, Pembroke HM06, Bermuda **Home tel 296 0820**

From: [Anne Steele](#)
To: [Electricity](#)
Subject: Bermuda Better Energy Plan
Date: Monday, November 26, 2018 11:50:14 AM

Please add my name to those who support the Bermuda Better Energy Plan. I am against the Belco Plan dated February 2018.

Regards,

Anne Steele

From: [Ann-Marie Schramm](#)
To: [Electricity](#)
Subject: Response to Consultation Comments on IRP Bulk Generation Proposals
Date: Friday, November 30, 2018 10:11:00 AM

15, Whitney Avenue,
Pembroke, HM13,
amsmorris@hotmail.com
November 30th, 2018

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

Dear Ms Lister,

I am writing to you to submit a response to the Regulatory Authority of Bermuda's consultation on the IRP Bulk Generation Proposals.

I support the Bermuda Better Energy Plan submitted by BE Solar, as this plan is the most consistent regarding the purposes of the Electricity Act and ministerial directions for the lowest cost provision of reliable energy.

The plan also provides clear and convincing evidence that renewable energy can deliver a substantial reduction in carbon emissions, while stabilising energy costs through clean, renewable energy.

As I understand it, the Bermuda Better Energy Plan uses technology that is in commercial use in other jurisdictions and has been painstakingly developed to comply with current methodologies.

I think that this would be a fantastic opportunity for Bermuda to take the lead in providing a safer and more sustainable future in the years to come. We are all aware of the rising world population and the need to move away from finite resources towards renewable energy sources.

I, for one, would feel much happier knowing that my child will be growing up in a Bermuda that is moving with the times and providing a more sustainable environment.

Thank you for taking the time to read my letter. I look forward to hearing the results of the final response of the IRP consultation process.

Yours sincerely,
Ann-Marie Schramm

Sent from my iPad



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

24 November, 2018

Response to Consultation Document: Comments on IRP Bulk Generation Proposals

Dear Ms Lister,

After careful review of the BELCO Plan and the Bermuda Better Energy Plan submitted by BE Solar, the Bermuda Audubon Society has decided to support the Bermuda Better Energy Plan (BBEP).

Unlike the BELCO plan, which continues to rely heavily on fossil fuels, the BBEP's focus on increased energy generation from renewable resources, along with improved energy efficiencies, is a sustainable and environmentally responsible approach that would substantially reduce Bermuda's carbon emissions while stabilising energy costs. The [IPCC's latest report](#) is unequivocal in its message that the world must move away from reliance on fossil fuels or face devastating consequences. As a small island nation, Bermuda stands to be severely impacted by some of those consequences, including rising sea-levels; we must play our role in reducing carbon emissions.

The BBEP proposes the use of tried and tested technologies that are in commercial use in other jurisdictions. We believe the plan to be well researched and consistent with the purposes of the Electricity Act and ministerial directions for the least-cost provision of reliable electricity.

However, we do have concerns about the potential negative impact of offshore wind turbines on bird life and our support for the BBEP is provisional upon a comprehensive environmental impact survey being conducted for the proposed offshore wind farm, with the input of local and international seabird experts. There is still limited research available on the impact of wind farms on birds, but that which has been conducted shows that wind turbines do result in hundreds of thousands of bird fatalities a year. However, it is generally agreed that much can be done to minimize bird fatalities by careful siting of wind farms and employing effective

(tested) mitigation techniques. The general position of major bird-focused organisations, such as the [Royal Society for the Protection of Birds](#) (RSPB) and [BirdLife International](#), is that wind energy is an important part of the renewable energy mix that is required to combat climate-change, but that the siting of wind farms must be done with extreme care and in consultation with environmental experts.

Given these concerns, the Bermuda Audubon Society supports a much greater focus on encouraging use of solar panels on Bermuda homes and businesses, while accepting that a small number of carefully sited offshore wind turbines may prove to be an environmentally tolerable addition to meet Bermuda's energy needs.

Thank you for your consideration of this response. The Bermuda Audubon Society looks forward to learning of the final outcome of the IRP consultation process in due course.

Sincerely,

Karen Border
President, Bermuda Audubon Society