



National Fuels Policy Discussion Paper

Public Responses

22nd August 2017

The Department of Energy (DoE) published the National Fuels Policy (NFP) Discussion Paper for public consultation on the 16th of June 2017. The Government thanks all respondents for their time and thoughtful consideration of the Discussion Paper.

This document compiles the key concerns raised by respondents. Section 1 addresses the various concerns raised about specific policies in the NFP Discussion Paper. Section 2 addresses concerns raised about subjects related to the NFP.

1 Key Concerns

Respondents to the NFP Discussion Paper raise various concerns, focusing on ten topics mentioned in the proposed policies:

- Transition to new fuel type for electricity generation (section 1.1)
- Regulating essential infrastructure (section 1.2)
- Renewables and distributed generation (section 1.3)
- Critical infrastructure standards and fuel security (section 1.4)
- Process to determine fuel type for electricity generation (section 1.5)
- Margin setting and publishing fuel prices (section 1.6)
- Safety, environment, and public health standards and regulations, and approvals framework (section 1.7)
- Efficiency for stationary uses (section 1.8)
- Efficiency for vehicles (section 1.9)
- Procurement of fuels contracts (section 1.10).

The sections below note the respondents' main points of feedback, focusing on feedback that presents a critical position towards the suggested policies in the NFP, and provide the Government's reply where appropriate.

1.1 Transition to a new fuel type for electricity generation

Some respondents support the NFP’s neutral and open position on liquefied natural gas (LNG) as a possible baseline fuel for electricity generation, arguing that:

- LNG is cleaner burning and safer than liquefied petroleum gas (LPG), for example in case of a leak
- A higher percentage of the energy that is stored in LNG fuel can be used compared to traditional fossil fuels, thanks to technologies for cogeneration and tri-generation (electricity, heating, and cooling).

Several respondents oppose the proposed adoption of LNG as a fuel for baseline electricity generation. Table 1.1 lists the main concerns that were raised on this matter.

Table 1.1: Feedback on a possible transition to LNG for electricity generation

Concerns cited	Department of Energy
<p>Cost—Importing LNG would be too expensive, capital intensive, and would make the country dependent on LNG fuel for several decades, even if changes in technologies and costs make cleaner alternatives more viable</p> <p>Environment and climate change—Emissions over the whole lifecycle of LNG are not significantly lower than from conventional fossil fuels</p> <p>Safety—LNG storage and transport raise huge safety and planning problems</p>	<ul style="list-style-type: none"> ▪ The Government acknowledges the diverse reactions from respondents and also recognises the significance and importance of any decision as it relates to transitioning to a new fuel type for electricity generation for the Island as highlighted in these responses ▪ The NFP adopts a technologically neutral approach, prioritising economic, environmental, and social benefits for the country. The type of fuel to be used for electricity generation will be decided through the <i>Integrated Resource Plan</i> (IRP) process defined in the Electricity Act, including through a legally mandated public consultation. Other items in the generation expansion plan, including infrastructure investment and renewable energy capacity, will also be decided through the IRP process ▪ Major new fuel infrastructure developments must pass rigorous Health, Safety, and Environment assessments before obtaining planning approval

1.2 Regulating essential infrastructure

Some respondents question what essential infrastructure regulation consists of, why it is needed, why the NFP deals with it, and why the Regulatory Authority is being granted responsibility in this arena.

When an infrastructure asset creates a bottleneck for access to a consumer market that is upstream or downstream of the asset (such as with major transport arteries, telecommunications lines, and water or gas pipelines), owners may exhibit anti-competitive behaviour. For example, without regulation, they may impose monopoly pricing for access to the infrastructure to limit competition in the market.

To control such behaviour, several jurisdictions including the United Kingdom, United States, and Australia have developed tools to regulate access to essential facilities. This aims to encourage competition in dependent markets by allowing third parties to gain reasonable access to essential facilities. In Australia, this is achieved through competition law and a Productivity Commission that arbitrates disputes between companies over access to infrastructure. The Commission also publishes performance results of industries subject to access regulation, to provide appropriate incentives for efficiency and high quality service.

Several additional questions and concerns were raised about regulating essential infrastructure, as listed in Table 1.2

Table 1.2: Regulating essential infrastructure

Concerns cited	Department of Energy
<p>Law—Essential infrastructure should be achieved through legislation; fuel policy is the wrong place to address it</p> <p>Responsibility—No appropriate entity exists in Bermuda with the authority to define fair access prices and costs of operating essential infrastructure</p> <p>Methodology of regulation—Many factors should be considered to determine a fair access price, including all the liabilities and costs of the owner/operator</p> <p>Effect on owner/operator—The regulator should consult infrastructure owners to determine fair and reasonable prices and rules for access to essential infrastructure. Terms should be economically acceptable to the owner or will have harmful outcomes</p> <p>Cost and feasibility—Regulating essential infrastructure will be costly, and the local fuels market is too small to tolerate it</p>	<ul style="list-style-type: none"> ▪ The NFP, once final, will set out the Government’s policies regarding the fuels sector. New regulations that may be required would be created through the legislative process. ▪ Bermuda has no authority dedicated exclusively to competition regulation. However, the Regulatory Authority conducts regulation of competition and pricing in telecommunications and electricity. Therefore, the Regulatory Authority is the best placed to conduct regulation of access terms for fuels sector infrastructure. ▪ Regulating essential infrastructure will require the Authority to assess the costs and liabilities borne by the asset owner through extensive consultation, and to understand the market dynamics that are eventually desired under regulation. The Authority will use its findings to determine appropriate access terms for third party entrants to use the asset, and to provide acceptable rules and returns for owners. These rules will be formulated so as not to be onerous for the owner.

1.3 Renewables and distributed generation

Several respondents criticise the NFP’s subdued stance on renewable energy solutions for electricity generation and to displace fuel usage in other sectors such as transport. Table 1.3 lists these concerns.

Table 1.3: Renewable energy and distributed generation for electricity sector

Concerns cited	Department of Energy
<p>Advantages—Government’s policy should focus on renewable energy, storage (load control/smart grid), efficiency, and electrification of transport, to displace fossil fuels in Bermuda. Levels of distributed generation from rooftop solar PV should be increased with better incentives, to reach national targets on renewable energies</p>	<ul style="list-style-type: none"> ▪ The 2015 Electricity Policy outlines the <i>aspirational electricity generation matrix</i>, a snapshot of how the electricity sector might look in 2035. It also outlines policies to incentivize customers to invest in distributed generation from renewables ▪ The 2016 Electricity Act underpins that Policy with a legal basis for promoting cleaner generation technologies ▪ The aspirational electricity generation matrix shows how the share of distributed generation from renewable technologies could increase in future, such as with rooftop solar panels. The amount of solar power on the grid also depends on the capacity of the grid to absorb more variable power; more grid stability will allow for more renewable energy capacity ▪ Generation planning is a continuous process that evolves with time, depending on changing costs and performance of different technologies. Improving costs and performance of renewable energy technologies could enable renewables to play an even greater role in electricity generation than forecasted in the Electricity Policy ▪ The goals and legal tools defined in the Electricity Act provide a backbone for the NFP, which applies similar goals to the transport sector and stationary uses of fuel (these are important uses of energy in Bermuda that do not use electricity, for the most part) ▪ The aspirational fuel mix presented in the NFP Discussion Paper is based on the quantities used in the Electricity Policy’s electricity generation matrix. The NFP examines other uses of fuel in addition to electricity generation, including transport and stationary uses like cooking and process heat
<p>Costs—Increasing the share of variable renewables would require full grid back up from base load generation options</p>	

1.4 Critical infrastructure standards and fuel security

Some respondents are concerned that the NFP may imply that the Government will introduce new standards for operating and maintaining critical infrastructure, and that it will mandate new ways of running those assets during national crises. Table 1.4 lists their main concerns.

Table 1.4: Setting standards for critical infrastructure

Concerns cited	Department of Energy
<p>New standards—Does Government plan to adopt different codes governing operating and maintaining critical infrastructure? What inspection and auditing mechanism will be introduced?</p> <p>Fuel sector operators—The petroleum industry operators are best placed to set standards in this field, and should be consulted on the question of defining new ones</p> <p>Government obligation—Fuel sector licensees/operators should be indemnified if Government fails to maintain public infrastructure in an adequate manner, causing losses to licensees</p>	<ul style="list-style-type: none"> ▪ The Government does not plan to overhaul the existing standards or to impose a completely new regime. Rather, it aims to codify the existing practices and standards to provide consistency and continuity between all operators and safety authorities ▪ The Government acknowledges the ongoing coordination with private operators of critical infrastructure in planning contingency measures for emergency situations ▪ Industry will be kept abreast of changes and consulted where appropriate if new standards, based on international best practice, are being considered for Bermuda’s fuels sector

1.5 Process to determine fuel type for electricity generation

Some respondents criticise the Integrated Resource Plan (IRP) process defined in the Electricity Act, and its progress to date. Several claim that the draft IRP released by BELCo in June 2016 does not adequately assess all generation options, and that it should more rigorously consider the costs and benefits of different electricity generation pathways in the medium to long term.

Table 1.5: Criticism of the IRP process

Concerns cited	Department of Energy
<p>Policy processes—The electricity utility (BELCO) has not followed Government policy requirements in its IRP, including the process, methodology, and by advocating for LNG</p> <p>Renewables, distributed generation, electric vehicles—IRP must consider the growth of electric vehicles and of intermittent solar generation, including the effect on peak load and the cost of delivering power to consumers</p> <p>Deciding a baseline fuel technology for the future—The right fuel pathway for future electricity generation in Bermuda should not be left up to the Regulatory Authority to decide (de facto)</p>	<ul style="list-style-type: none"> ▪ The Government appreciates the feedback from all respondents and stakeholders on this matter, and will continue to consult with the public on the best path to follow at present for all Bermuda residents ▪ The Electricity Act’s <i>Integrated Resource Plan</i> process requires that there be a public consultation about the electricity sector’s generation expansion plan, including to discuss the types of technology used for electricity

1.6 Public health, environment, and safety standards and regulations, and approvals framework

The respondents express various concerns on the NFP’s policies for reviewing the organization of the public health, environment, and safety standards and regulations, and of the approvals/permitting, monitoring, and enforcement mechanisms. Both major fuel importers support the suggestion to create a streamlined approvals process, and strongly suggest setting timelines for these processes from the public sector’s side.

The different topics that these concerns relate to are listed in Table 1.7.

Table 1.6: Reassessing standards, regulations, monitoring, and approvals

Concerns cited	Department of Energy
<p>Support—A streamlined approvals process with a set timeline is a good idea, including fines for non-compliance; support setting maximum delays for Government approvals processes</p>	<ul style="list-style-type: none"> ▪ The organisational plan mentioned in the NFP will help determine whether, and in what areas, changes are necessary, and how to make the process more streamlined and user-friendly
<p>Criticism—The Regulatory Authority should not be responsible for licensing regarding planning and technical matters; fuel sector operators should be the first port of call for monitoring safety standards, including to report instances of non-compliance</p>	<ul style="list-style-type: none"> ▪ The Regulatory Authority will not be responsible for any technical monitoring or approval ▪ Fuel companies will be consulted to ensure comprehensive, appropriate standards are in place for maintenance and operating safety and environmental protection
<p>New regulations on environment and public health—Sol and Rubis have self-imposed rigorous and internationally-approved maintenance and operating standards. Bermuda should adopt industry best practice such as API and NFPA, not create own Bermuda-specific standards. Creating new standards would just increase costs; existing operators should be allowed time to comply with new standards if adopted</p> <p>Regulating transport emissions—Passing new regulations on vehicle emissions is unnecessary. Technological changes and market forces are already making these obsolete:</p> <p>Private individuals’ safety practices—The new law should not prevent any person or organization to make, store and use fuels to sell to others.</p>	<ul style="list-style-type: none"> ▪ The Government will consult fuel companies and use verified international standards, with a grace period subject to Bermuda law and convention ▪ The fuel regulation and licensing regime pertains to commercial activities involving fuels. Individuals who use fuel for private purposes (and not for sale to other consumers) will not require commercial fuel licences, but will be bound to act in accordance with all applicable Bermudian safety and environmental laws and regulations

1.7 Margin setting and publishing fuel prices

Some respondents show doubts about whether fuel prices are regulated currently in Bermuda, although the fuel sector operators claim that the process in place today works well. Fuel sector operators accept that the process be formalised.

Table 1.7: Formalising fuel price regulation

Concerns cited	Department of Energy
<p>Cost and difficulty to regulate fuel prices—Regulating the prices of fuels seems too complicated, costly, and difficult for a regulator</p> <p>Fairness—Fuel sector operators should be consulted in determining a maximum price; the pricing mechanism must be fair for all parties, and sensitive to volatility of global markets</p>	<ul style="list-style-type: none"> ▪ Today’s processes for setting maximum operators’ margins on the wholesale and retail prices of fuels will be reflected in the new regulatory method, to be conducted by the Regulatory Authority ▪ Fuel importers and regulator will be consulted in the duration of this transfer of responsibilities
<p>Publishing fuel prices—Fuel prices are supposed to be published currently, and also are updated via fuel sector operators’ social media pages. Price billboards would spoil Bermuda’s landscape</p>	<ul style="list-style-type: none"> ▪ Any Government policy and new regulation accompanying it will be in line with existing and future planning regulations on displaying signs

1.8 Efficiency for stationary uses

Several respondents mention the NFP’s proposed policies on energy efficiency for stationary uses of fuel. The main areas of concern were creating public incentives for energy efficiency, and the methodology and assumptions used to set the aspirational targets on efficiency improvements.

Table 1.8: Incentive schemes to increase energy efficiency in stationary uses of fuels

Concerns cited	Department of Energy
<p>Energy efficiency in stationary uses—Gas appliances should be taxed less than electric appliances, which are less efficient. Direct rebates may help to supplement other incentives for efficiency (in addition to loans)</p>	<ul style="list-style-type: none"> ▪ The Government welcomes feedback on the fiscal regime, and suggestions on efficiency incentives, which will be considered in devising a coherent and informed strategy for energy efficiency in Bermuda
<p>Targets—Why did the draft NFP’s assumptions rely on data from Cayman Islands and Belize? More work is needed to know the true level of energy efficiency for stationary use of fuel in Bermuda.</p>	<ul style="list-style-type: none"> ▪ Government will assess the need to conduct an energy efficiency audit of general residential and commercial sectors to gain data on energy efficiency in electricity use, stationary fuel use, and transport ▪ Data on energy efficiency is scarce for Bermuda at present, so it is useful to compare to other similar jurisdictions

1.9 Efficiency for transport

The topics of electric and fuel-efficient transport raise many comments. Several respondents voice support for electric vehicles, while others oppose them for different reasons. The supporting comments note that electric vehicle batteries can help with grid balancing, and produce fewer local emissions and pollution. They suggest that the Department of Marine and Ports consider zero-emission electric ferries such as introduced in Norway and Sweden in recent years. They also support creating efficiency incentives for private watercraft, citing the advantages of electric outboard motors compared to diesel ones.

Table 1.9 lists the concerns raised about electric vehicles for Bermuda.

Table 1.9: Increasing energy efficiency in the transport sector

Concerns cited	Department of Energy
<p>Environment, climate change, and safety—Electric vehicles are not low-emission compared to conventional engines (except with solar battery charging). LNG or LPG engines would produce fewer emissions overall. Car battery disposal may be unsafe and environmentally hazardous</p> <p>Cost—The public sector would lose revenues from customs duty collected on internal combustion engine vehicles and associated fuels. Presently, the customs regime does not offer coherent incentives: for example, why are pedal bicycles taxed at a higher rate than electric vehicles?</p> <ul style="list-style-type: none"> ▪ Electric vehicles have a high electricity cost, with the equivalent of 3 days’ domestic electricity consumption to recharge ▪ The electricity utility could not cope with increased demand if large number of customers switch to electric cars <p>General concerns—What are the demand and supply-side barriers for the uptake of electric vehicles in Bermuda and how does the NFP address them? What does the economic analysis of electric vehicles show for Bermuda?</p> <p>Auto dealers—It is unrealistic to require dealers to publish lifetime vehicle ownership costs, as they are difficult to calculate and involve many assumptions</p>	<ul style="list-style-type: none"> ▪ The public-private Electric Vehicle Working Group (EVWG) is conducting further work/assessment to understand the suitability of electric vehicles for Bermuda ▪ The increase in electric-powered transport that is modelled in the NFP assumes that the sources of electricity generation include more renewable energy and lower-intensity carbon sources ▪ A cost-benefit analysis of owning an electric vehicle in Bermuda, compared to a similarly-sized hybrid and conventional gasoline vehicle, shows electric vehicles are viable in Bermuda. The analysis assumes present-day gasoline and electricity prices and vehicle purchase prices for the next decade, and considers the savings available from tax incentives on electric vehicles. The cost of owning an electric car over 10 years is about 25 % lower than for a gasoline conventional vehicle. A hybrid electric vehicle is similarly beneficial ▪ Public revenues could be supplemented through alternative streams ▪ As the EVWG progresses with research and consultations with stakeholders the findings and data could be made available to the public ▪ Providing more transparency about lifetime car ownership costs would not require onerous calculations. A simple model can be used, with assumptions for the costs of electricity, fuel, and other costs

1.10 Procurement of fuels contracts

Some respondents were critical of this policy, as summarized in Table 1.10.

Table 1.10: Against increasing competition in fuel procurement

Concerns cited	Department of Energy
<p>Change is unnecessary—Commercial contracts are already highly competitive, increasing competition in this sector is not needed. Increasing regulation will just have harmful effects on efficiency in the supply chain.</p> <p>Third parties—Non-local entities should not be invited to bid on Government fuel contracts: they could easily import fuels in iso-containers without having to invest and maintain any infrastructure on the island; it’s unfair to local importers</p> <p>Efficient costs—What does “allocating costs efficiently” mean for fuel procurement processes?</p>	<ul style="list-style-type: none"> ▪ Some commercial contracts may not be competitive because commercial consumers are loyal to one provider, or do not seek alternative quotes from competitors ▪ In non-competitive markets, regulation can be helpful to incentivise more efficient commercial practices ▪ Allocating costs efficiently means making sure that appropriate resources are spent at each level of supply chain, reducing transaction inefficiencies

2 Responses on other matters

This section deals with concerns raised that commented on other areas of NFP, or topics where a specific policy was not extensively discussed, such as hydrogen fuel.

2.1 Alternative fuels for electricity and transport

A handful of respondents discuss an alternative proposal of using hydrogen fuel for electricity generation, and the need to pay more attention to jet fuel as a key security concern for Bermuda’s economy. These comments are summarized in Table 2.1.

Table 2.1: Alternative fuels for electricity and transport sectors

Concerns cited	Department of Energy
<p>Hydrogen fuel—NFP should consider hydrogen fuel more seriously, for example a proposal to create electricity generating facility on island, in partnership with BELCO; this would remove the need for more solar PV development</p>	<ul style="list-style-type: none"> ▪ The fuel used for baseline electricity generation is still a matter being discussed at several levels among the public, the utility, and Government
<p>Jet fuel sector—The aviation sector will use increasing amounts of biofuel, so NFP should consider that. Jet fuel is a security risk for Bermuda, as only one supplier is on the island, this could put Bermuda’s largest industries at risk (tourism and international finance)</p>	<ul style="list-style-type: none"> ▪ The mix of jet fuels used by aviation industry is not a matter for Government involvement ▪ The number of suppliers of jet fuel is a question for the private sector; Government cannot mandate additional importers

2.2 Quantitative and qualitative evaluation of Policies, Goals, and Vision

Some respondents question the methodology for creating the Goals and Vision, and for assessing the different policy options that fed into the NFP policies. They also suggest a few changes to these main sections, including to the wording of goals.

Table 2.2: Analysis of Policies, Goals, and Vision of the NFP

Concerns cited	Department of Energy
<p>Methodology and assessment methods</p> <ul style="list-style-type: none"> ▪ How were existing fuel sector processes & practices assessed in light of the NFP’s Goals? ▪ The Government should conduct a quantitative evaluation of the costs and benefits of alternative policies ▪ What assessment methods were used to choose the recommended actions? 	<ul style="list-style-type: none"> ▪ The NFP policies are designed to merge seamlessly with previous Government policies especially the 2015 Electricity Policy ▪ The policies are based on assessments of existing policies and practices, and targeted economic assessments of different options
<p>Comments on Vision and impact on public revenues</p> <ul style="list-style-type: none"> ▪ Vision should compare all the costs of NFP vs. BAU scenarios, including the cost of lost Government revenues due to diminished fuel sales 	<ul style="list-style-type: none"> ▪ Not all policies and costs can be precisely calculated, as many alternatives are unknown ▪ The NFP’s purpose is not to determine the costs of lost public revenues or to prescribe remedies; rather, it is to formulate economically viable and beneficial policies for all Bermudians today and for the next 17 years
<p>Comments on Goals</p> <ul style="list-style-type: none"> ▪ The Goals should not emphasise both ‘least cost’ and ‘affordable’ as separate outcomes ▪ On the other hand, public safety and fuel quality are distinct objectives. 	<ul style="list-style-type: none"> ▪ ‘Least cost’ and ‘affordable’ refer to different desired outcomes. The first is primarily an economic outcome and the second is social, though they are connected, because a least cost supply makes it easier for policy to provide an affordable outcome ▪ Fuel quality and public safety are cited in the same goal because the first is necessary for achieving the second. Fuel quality refers to maintaining standards for clean and safe-burning fuels, which are imperative to ensure conditions that allow clean air, reduce fire hazard, protect public health, and are gentle on engines and equipment.