

ANTIGUA AND BARBUDA

EVALUATION OF THE ADEQUACY OF THE 2011 NATIONAL ENERGY POLICY AND RECOMMENDATIONS FOR ITS IMPROVEMENT

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INTRODUCTION

The first draft of the National Energy Policy was developed in 2010 and put up for stakeholder consultation on December of 2010. With the comments received on the Draft 2010 the NEP 2011 was compiled and submitted for approval from the Cabinet. The NEP 2011 was approved on August 20th of 2011.

Under the contract for this project, one of the activities is to carry out an analysis of the NEP and provide recommendations for its improvement. This report reflects the Consultants view of the NEP 2011 and outlines some recommendations for its improvement.

Some recommendations proposed to revise the NEP were based on the actions recommended in the Sustainable Energy Action Plan (SEAP), of which the Draft version was delivered to the Energy Desk for review in the 11th January 2013.

This document is considered a final document as it already incorporates the recommendations within the SEAP.

EVALUATION OF THE ADEQUACY OF THE NATIONAL ENERGY POLICY (NEP) AND RECOMMENDATIONS FOR ITS IMPROVEMENT

The NEP 2011 represents a step forward in the incorporation of renewable (RE) and energy efficiency (EE) into the energy market of Antigua & Barbuda as a means of reducing the exclusive dependence on fossil fuels and vulnerability to volatile energy markets. The policy sets up several goals and targets, which have been already referred on Section 4.1.4 of the Antigua & Barbuda Country Profile.

The approach followed on the NEP 2011 is a national energy policy for major sectors (i.e. power, transportation and other uses of energy) and it presents as well an implementation and monitoring section. Thus, the national energy policy is subdivided into several sections; energy sources, energy efficiency management, legal and regulatory framework and institutional framework.

The NEP 2011 could be improved or extended in a few ways. The following subsections describe in which ways the NEP 2011 could be improved or even extended. The subsections follow the same structure of the NEP to facilitate comparison.

2.1 BACKGROUND

2.1.1 *Vision of the NEP*

Although the NEP 2011 has provided a vision for the year of 2030, it is not mentioned on the vision statement:

- ♦ **how the energy needs of the present and future generations shall be met** (by indigenous sources and/or by imports); and

These issues should be clarified.

Proposed vision for the NEP:

By 2030 Antigua and Barbuda will meet the energy needs of the present generation **by increasing the energy generation from RES** while safeguarding the environment and enabling future generations to meet their own energy needs. All citizens and residents will have access to affordable, efficient, socially responsible and reliable forms of energy.

2.1.2 *Outlook on Energy and the Economy*

Global

Although data used on the NEP 2011 was up to date when it was developed, the section is still very much focused on oil, which is certainly not the only issue which should be mentioned in a global energy outlook. Apart from mentioning other energy sources, the transition towards a non-fossil system and nuclear energy should be mentioned (more explicitly) as major issues on the international agenda.

Regional

Very much focused on oil, which may be understandable because of the high dependency on petroleum products of the region. The Petroleum Stabilization Fund and in particular the PETROCARIBE agreement with Venezuela are obviously important instruments to mitigate oil price increases (and probably to counteract policies which aim at diversification of energy sources).

In case the CARICOM Regional Energy Strategy has been enacted yet, the information on that policy may need to be revised. At this point in time, and according to information publicly available the new strategy has not been enacted yet, however an e-mail as been sent to CARICOM for confirmation for which no answer has been received.

National

Consider to update (if this information is available):

- the total sales by the West Indies Oil Company (WIOC) to more recent years
- the Retail Prices to 2010 or 2011 for the different Islands (Table 1.1 of the NEP 2011) and add currency; and
- Tariff survey among CARILEC Member Utilities (Table 1.2 of the NEP 2011).

2.1.3 Energy Related Agreements and Obligations

This section was reformulated from the Draft NEP 2010 to the NEP 2011, and most of it was deleted. However it would be important to consider referencing other agreements to which A&B are bounded to (some of them referenced in the NEP 2010: UNFCCC convention, the IRENA, the involvement of A&B in the MDG programme). If this is added, it would be relevant to know what is the position / role of Antigua & Barbuda in the various international agreements mentioned. In this section it is only mentioned that Antigua & Barbuda has not ratified the IRENA agreement, it would be good to know why as well.

If the above changes are incorporated, the following correction should be made to the paragraph referring to GEF: GEF was established in 1991, i.e. prior to UNFCCC. GEF became later a finance mechanism for i.e. (not exclusively) UNFCCC.

The section on the NEP 2011 refers that “if a new protocol is adopted in 2012 Antigua and Barbuda will be legally bound to take on targets to cut emissions”. If there are already some pledges on the targets, these targets to cut down emissions, should be mentioned here. If not, it should be mentioned when they will be set-up.

2.1.4 Power Generation

Under the Energy Demand Projections:

Consider removing the reference for the technician at APUA. Leave According to APUA (...)

Power producers

Consider updating this data for more recent years. Use the information on the Antigua & Barbuda Country Profile.

2.2 STRATEGIC INTENT

Review the formulation of the 'strategic intent' in:

- a) the term 'that exploit' may have a negative connotation: change to "utilises"

2.2.1 Strategic Objectives

I) Energy Cost Reduction

Comparing what was stated in the Draft NEP 2010 and what is in the NEP 2011, this section has definitely been improved: building codes are more widely addressed (referring not exclusively to refrigeration) and standards for air conditioned are addressed separately. However there is still some room for improvement:

- In d) still there should be a differentiation between (i) air conditioners and central air conditioners and (ii) between minimum energy performance standards (MEPS) and energy labelling requirements – the latter could be under f). There is a need for a good mix of both instruments, targeting specific appliances / equipment.

Also, in terms of targets, consistency with the 2030 vision should be assured:

- In a), b), c) and e) targets are defined for the next 10 or 15 years.
 - a) overall energy intensity of A&B economy will be reduced by at least 10% below the 2010 levels within 10 years;
 - b) improve energy efficiency by 30% over 15 years, through the revision of building codes and implementation of energy management programs.
 - c) Improve efficiency in the transportation sector by 40% in 15 years through the introduction of legislation and appropriate economic incentives to fast track the migration of public and private fossil powered vehicles to low carbon technologies
 - e) Antigua & Barbuda Government being one of the largest energy consumers will assume the lead position as driver of cost reduction initiatives by legislating and implementing cost reduction initiatives with a view to reducing its consumption and costs by 30% in 10 years.

To assure consistency within the energy policy and since the vision is to be achieved by 2030, apart from interim targets; targets should also be defined for the year 2030. Also on b), c) and e) the reference year to which the energy efficiency reductions should be achieved, should be referenced as well.

- Moreover c) should be analysed in some detail: transport low carbon technologies refer to hybrid vehicles (if this means fuel + electricity) make only sense if the electricity is from renewable sources. Several questions arise: (i) Is there sufficient potential of renewable electricity generation (to serve the need of other sectors as well as transport)? (ii) What would be the effect on the load curve (charging cycles are crucial in this respect)?

II) Diversification and efficient use of energy sources

This section clearly defines RE targets in the electricity supply mix for the utility: 2015: 5%; 2020: 10% and 2030: 15%.

III) Electricity Reliability

On b) perhaps it can be added to the sentence what is below underlined, as distributed generation could help improve grid stability:

- b) Support investment in grid stability (e.g. through distributed generation) to reduce number and duration of operational disturbances and strengthen the energy infrastructure to enable faster recovery from disruptions to the energy supply.

V) Stimulate New Economic/Business Opportunities

On c) it is stated that one of the strategic objectives is to “Provide legislation and incentive to create a vehicle conversion industry from full fossil powered vehicles to hybrids”: Not sure if this is realistic. Incentives and legislation can be put forwarded so that when importing vehicles to the island the population and the private sector may import hybrids instead of conventional vehicles, but at this point in time it seems that this is as far as it can go, thus in this way a market for hybrid vehicles would be created. Perhaps the sentence could be changed to: “Provide legislation and incentive to create a market for clean energy vehicles (hybrids)”.

2.2.2 Means and Pathways

Renewable Energy

- “Sustainable biomass electricity e.g. from agriculture and solid waste, woody residues, sewage sludge, etc” is one of the means put forward in the NEP 2011.

There is little information on the available potential (inventory of available waste from agriculture and forestry, as well as an inventory of municipal waste, sewage sludge needs to be developed) of exploitable waste in Antigua and Barbuda. So for this to be an explicit “mean and pathway” as indicated in the NEP 2011, this information needs to be firstly assessed. Moreover, as it relates to the generation of electricity from municipal waste, sewage sludge, etc. gasification and similar technologies may be preferred above incineration in terms of electricity output and environmental considerations (see Section 2.4.1 point related with Waste to Energy).

Perhaps this point should be changed to:

- Sustainable biomass electricity (e.g. from agriculture and solid waste, woody residues, sewage sludge, etc.) or utilisation of gasification and or other similar technologies (if feasible)

Energy Efficiency and Saving

- Add to the list of means and pathways the following: Lighting and appliances: mandatory energy labelling of appliances and lamps, as well as minimum standards for lamps (phasing out of incandescent lamps) are required. Additional options would be replacement programs. Note: this has a prominent place in the SEAP.
- Unclear what is meant by 'energy storage devices' – this should be specified

Infrastructure and Utility Management

Add to the means and pathways:

- Develop legislation that “force” the utility to accept all electricity produced from RES private production into the grid.
 - Develop clear legislation for private power produces (with production higher than 50kW) on how to request connection to the grid and the approval process involved;
 - Develop and make available a generic Power Purchase Agreement (PPA).
- All the above mention means have been considered in the SEAP.

Transport and Cleaner Fuel Options

The hybrid mean, is in line in what is stated in the other sections of the policy, however the question raised on Section 2.2.1 l) Cost Reduction, should be clarified, and this should be revised according with that clarification.

Moreover, using LNG - as mentioned in the NEP at this and other places - would probably require the construction of a LNG terminal, which may not be economically feasible in A&B (this needs to be assessed). The assessment of feasibility of LNG has been included on the SEAP.

2.3 ENERGY POLICY FRAMEWORK

It appears that there are some inherent contradictions between the focus of the NEP and SEAP on sustainable energy, and the 'existing energy sector planning' which is only about electricity supply and import of petroleum products. While the NEP should cover energy supply and demand options and issues in an integral way (fossil and non-fossil, indigenous and imported energy, etc), the SEAP should have a more specific focus on sustainable alternatives.

In order to be able to make a realistic assessment of these options, not only 'a comprehensive assessment of the country's renewable energy potential' (including waste, biofuels) is required, but also an assessment of energy efficiency potentials and options.

2.4 POWER SECTOR

2.4.1 Energy Sources

Fossil Fuels / Non-renewable Energy Sources

b. It does not seem that Antigua & Barbuda has a potential of geothermal energy. Perhaps here the NEP is referring to look into this potential, and if it is economical to consider it. From geothermal studies realised in the region, geothermal is not a promising RES in Antigua & Barbuda. Thus probably in here the NEP is referring to using geothermal energy from other island through the establishment of an interconnection Moreover geothermal is not considered in the Means and Pathways Section under Renewable Energies to be developed/explored. Perhaps it would be more realistic to take the reference to geothermal from b) or clearly specify what is it referring too.

Suggestion: on e) Subsidies removed from fuel prices could be re-directed to stimulate EE and RE. This could be one mechanism to subsidise the development of EE and RE. This could be added at the end of e).

It would be also interesting to refer in this section how much the contribution of RE and EE will have in terms of the reduction of the necessity of fossil fuel imports. Perhaps in this section, a target for reduction on the imports of fossil fuel should be stated. With the information provided it is hard to establish a clear goal for reduction of imported fuel, unless the minimum goal of 10% is used.

Renewables

Under c) it will be also important to define the (preferred) modalities to employ wind, solar, biomass and waste-to-energy options (e.g. central or distributed generation).

Under f) solar water heating should also be considered for other sectors as well (residential and commercial) and not only for the tourism sector.

Waste to Energy

It is at least questionable whether waste incineration (the technology usually employed to generate electricity from waste) is 'environmentally sound', mainly due to emissions from the incineration process. Furthermore the previously widespread concept of 'mass burning' has been replaced by integral waste concepts, which rely first of all on separation, recycling of waste and technologies as composting of organic wastes. The tendency is to incinerate only the residual waste streams which cannot be recycled or processed otherwise.

We understand that the lack of space and the fact that the landfill is almost full, makes WTE one of the best solution for waste management. However if applied at all, WTE can only be the end piece of an integral waste concept.

This section should start by including the development of an integral waste policy/plan (including waste separation, recycling etc). This policy should consider options for energy recovery, which could include WTE but should also look into other possibilities such as electricity generated from methane from landfill/landfill leachate and wastewater treatment (biogas). Then it should state that for each of the considered electricity generation possibilities that the conditions and waste streams will be analysed in order to select the best or the best combination for Antigua & Barbuda.

Also, from the comparison analysis of the Draft NEP 2010 and NEP 2011, we have noticed that the Solid Waste Management Trust Fund established under the NEP 2010 in order to make possible effective WTE and recycling programmes across A&B (that actually made sense) was dropped out. Perhaps its inclusion should be re-considered.

Emerging Technologies

d) Ok, if standards for energy-using and energy related equipment (e.g. for solar water heaters) are meant. It would be better to specify.

2.4.2 Energy Efficiency Management

Supply side

Regarding the Combined Heat and Power (CHP):

— How to increase utilisation of CHP in the commercial sector in the absence (?) of natural gas? – this should be clarified.

Perhaps the second paragraph could be changed:

The Government will encourage the realisation of studies to assess the possibility of using CHP combined-heat-and-power plants in the productive and commercial sectors in order to increase the energy efficiency and reduce thermal losses.

Demand side

Utility-based DSM Programmes and ESCOs have been promoted during the last two decades, yet only few countries in the world have succeeded to develop viable markets for demand-side management and energy performance contracting. Yet, also many other – often more straight-forward – options to improve energy efficiency exist, such as: providing energy advice and audits (by trained consultants and/or via APUA). DSM by the utility could include early replacement programs for inefficient appliances and lighting, including incentives to consumers. It is recommended to pursue a flexible and pragmatic approach in developing a market for energy services, which does not exclude alternative options.

Mandatory labelling of appliances should be a priority. While for the Transport Sector (Section 5 of the NEP 2011), under Efficiency and Emission Standard, mandatory labelling of cars is considered; the NEP does not explicitly mention mandatory labelling of appliances. This should be referred.

2.4.3 Legal and Regulatory Framework

Incentives are important and should be (re-)directed to EE and RE.

APUA Act

c. Legislation should encourage distributed generation.

Moreover, DSM should be part of the obligations of APUA under the new legislation. Development Control Authority (DCA) Act

Consider adding:

- ♦ The revision should also contemplate a simple, clear and transparent procedure for permitting of RES projects.

2.4.4 Institutional Framework

Sustainable Energy Unit

Under (iv) labelling of energy using equipment should be a priority (see above). Consider adding under this point, that labelling of energy using equipment should be a priority.

Eastern Caribbean Energy Regulatory Authority (ECERA)

This section should be called Regulatory Agency.

The Government of Antigua and Barbuda must determine its approach for the establishment of an energy/electricity regulatory authority. Considering several options, including joining the emerging Eastern Caribbean Energy Regulatory Authority (ECERA), or alternatively consider the establishment of an Independent Regulatory Authority (IRA). The functions of the regulatory authority should be the ones outlined in Section 2.3 of the SEAP 2013. If deemed appropriate, there would seem to be considerable advantages utilizing a regional approach for regulation.

2.5 TRANSPORTATION SECTOR

In the last paragraph, it is correctly stated that Antigua & Barbuda is 'essentially a technology taker'. Also the conclusion from this statement is correct and realistic: "In that context, the National Energy Policy focuses on how vehicles are utilized, improving the quality and attractiveness of public transportation and utilizing a combination of fiscal incentives to promote the use of the most efficient technologies".

This statement is however in contradiction with some proposals regarding transportation made under 2.1 and 2.2 of the NEP and some pretentions under 2.1 V (e.g. e) creation of a vehicle conversion industry).

2.5.1 *Ground Transportation*

See the comments above on electric cars – this should be only considered when they are supplied with electricity from RES.

2.5.3 *Environment and Transport*

Regarding:

e) by when will the 10% biofuel blending be achieved (2030)? This should be clarified in the NEP.

g) consider adding lubricants as well; thus it would look like: g) The Government shall introduce regulations in order to eradicate the indiscriminate disposal of used fuel and lubricants from ground, air and marine transport.

2.6 OTHER USES OF ENERGY

2.6.1 *Cooking*

Are there 'plentiful' woody and non-woody biomass resources in Antigua & Barbuda? There is no study yet on this. Perhaps this should be reformulated.

2.6.2 *Small Engines*

Does this mean to stimulate the use of small electricity generators using gasoline?

2.6.3 *Legal and Regulatory Framework*

It should be clarified who will do the testing for cooking fuels and small engines?

2.7 IMPLEMENTATION AND MONITORING

2.7.1 *Development of the Sustainable Energy Action Plan (SEAP)*

The three strategies defined for the SEAP focus on EE and RE (the 'sustainable options'). Still, EE and RE are not isolated fields in the overall energy policy and strategy and should refer also to other issues addressed in the National Energy Policy Framework – see remarks under Section 2.3 above.

Thus and to be fully in line with the proposed SEAP, this section should be reformulated.

Proposal:

In order to give life to the NEP, the Government has mandated the creation of a Sustainable Energy Plan (SEAP). The SEAP is intended to serve as a road map for the energy future in Antigua and Barbuda from 2010 until 2030. The SEAP will contain short (1-5 years), medium (5-10 years), and long (10-20 years) term actions designed to enhance the implementation of the policies and goals of Antigua and Barbuda's National Energy Policy (NEP). The specific activities contained in the SEAP will foster energy conservation, energy efficiency, and diversification of energy sources, sustainable energy consumption and generation as well as the utilization of renewable energy sources available in Antigua and Barbuda.

The strategies identified to meet the above are as follows:

- ◆ Strategy 0: General Cross-cutting strategy
- ◆ Strategy 1: Energy Conservation and Energy Efficiency
- ◆ Strategy 2: Renewable Energy Development
- ◆ Strategy 3: Education and Awareness

In order to implement the aforementioned SEAP, the following elements must be articulated for each of the four listed strategies:

- ◆ Target "objectives/quotas" to be accomplished
- ◆ Specific actions to be implemented
- ◆ Responsible agency per each action
- ◆ Appropriate indicators to measure the outputs of each project
- ◆ Level of priority (i.e. short, medium or long term)
- ◆ Cost and potential sources of funds for each project

The Energy Unit will be responsible for creating a first draft of the SEAP based on the above mentioned strategies and points and with the input of key stakeholders at the national, regional and international levels. Upon completion, the SEAP is to be submitted to Cabinet for approval. The approved plan will be tabled in Parliament and subjected to widespread circulation.

3

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