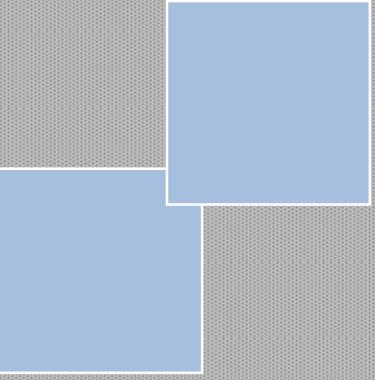


**POLICY DOCUMENT REGULATION
ELECTRICITY SUPPLY
CURAÇAO
2011-2015**

CUSTOMIZATION

**FOR RELIABLE PROVISION OF SERVICES, AFFORDABLE RATES AND
SUSTAINABLE ENERGY SUPPLY FOR THE BENEFIT OF THE
CURAÇAO COMMUNITY**



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SUMMARY

Currently there is a monopolistic market model in the electricity sector: production, transport and delivery are in the hands of one company. Over the past few years the Curaçao population was faced with increasing rates for electricity and frequent interruptions of the supply of electricity. This development has led to many expressions of discontent from consumers about the rates and availability of electricity. Therefore, the search for solutions to the problems of the energy sector is more urgent than ever before and there is a need for a reliable and coherent policy and supervision framework to achieve the best possible electricity supply and price setting in the country.

In this regard, the former Executive Council of Curaçao has taken the first step by approving an energy policy for Curaçao based on an April 2009 report from the Clingendael Institute. The Curaçao energy policy has four focal points:

- a. a transparent and stable system to determine national energy prices;
- b. confidence inspiring and efficient management and control mechanisms regarding public and private tasks in the energy sector;
- c. an energy supply that as much as possible uses sustainable energy sources that are locally available and
- d. a drastic reduction of the per capita energy consumption (i.c. energy conservation).

The policy and supervision framework under consideration provides further elaboration on the first three focal points of the energy policy,

With the exception of specific accents resulting from the difference in the type of products and services, the regulation of the electricity market is not significantly different from the way other utility sectors with major infrastructure or transport and distribution networks, such as water, gas and telecommunication, are set up. This is why the former Executive Council and now the government of Curaçao have also elected to go with the Bureau Telecommunications and Post (the Bureau) as independent supervisor to all these sectors. Since December 2009 the former Executive Council for the Island Territory of Curaçao ordered the Bureau, among other things, to develop a policy and supervision framework for the energy supply in this regard.



Bearing this in mind and also in order to gain material insight into the actual operation of the electricity sector, the Bureau made an analysis of the production, transport and delivery of electricity in Curaçao in 2010. The legal framework and the bottlenecks and problems are part of that analysis.

The existing legislation can roughly be sub-divided into two categories: legislation regarding energy licenses and legislation regarding the determination of prices by the government (among which are the energy rates). Eventhough in principle the legal framework for the assessment and determination of electricity rates is adequate, it has become apparent that especially the legislation regarding electricity supply has unfortunately become too restricted or else out of date with regard to its scope. Other bottlenecks that were identified are: the excessive rates (compared with other countries and islands in the region), an availability problem (in connection with frequent disruptions in the energy supply), little attention for consumer interests, the lack of active stimulation of sustainable energy and of a form of market regulation (merely regulating the rates in this case) which is insufficient for this day and age.

With a view to solving the problems that were identified, a new policy and supervision framework have been formulated. The general aim of the policy is to provide efficient, high quality sustainable electricity supply for the corporate market and private households in the new country Curaçao. In order to make these macro-aims operational, based on the general points of departure for policy stated above, a new market model and six concrete policy aims regarding energy supply were formulated.

The new market model is based on more market orientation, by which more efficient solutions may be generated. Point of departure is that the electricity market is further developed by introducing more market orientation to more market parties, with for its ultimate result, among other things, lower tariffs for the end consumer and a better availability of electricity quality-wise.

The introduction of more market orientation in the electricity market does entail the necessity to actualize the present legislation. Reforming the electricity market through the introduction of a new policy and supervisory framework, follows the international developments in the field of utility regulation. Particularly the positive consequences for the consumers and the community as a whole respective to the reforming of the telecommunications market, are an important motivation for the introduction of more market orientation into the electricity sector.

The new policy framework requires specific focus on the realization of six policy aims, which are:



1. realizing affordable provision of services;
2. realizing reliable provision of services regarding the availability of electricity for the corporate and private markets;
3. structurally safeguarding the interests of the end consumers of electricity;
4. introducing more market forces in (parts of) the electricity sector and
5. realizing more sustainable energy supply and also realizing requisite medium-term energy conservation;
6. introducing an independent form of market regulation.

As a result of the new market model, the three respective links in the market regulation system are looked at separately and all links (insofar as necessary) are subject to other rules of regulation, because each has its own specific role in the electricity chain. However, the various links must collaborate well together since the monopoly in the production and delivery link is broken (and therefore there is no longer just a single responsible party). The collaboration between the various links requires some arrangements in which one party (in this case the network company) is allocated the task of playmaker.

After the required legal amendments have become effective, the new market model will be introduced in phases. The first phase will consist of the assessment and issuance of concessions to multiple prospective electricity producers and also the liberalization and stimulation of the local production of sustainable energy. In this phase the network company will need to grow in its role as a facilitator in order to be able to deal with large-scale and small-scale producers and achieve a reliable and efficient provision of services and electricity supply.

During the second phase the other components, if any, of the new market model will be implemented. End consumers will have an option to choose a supplier. The other measures in connection with the supply (arrangement for damages, procedure for complaints and the like) will also become operational in this second phase.

The implementation of the new market model goes hand-in-hand with regular evaluation, so as to enable re-adjustment and corrections. Six months prior to the end of the implementation period during the first phase a policy investigation will be conducted, based on which realisation of the stated objectives may be assessed and for contemplating whether or not to implement the second phase.

The regulation of electricity also brings forth a sub division in technical, legal and economic supervision. These three forms of supervision will be the responsibility of an independent supervisor.

The *technical supervision* will focus on the technical and quality requirements, including the norms attached to it, on the three respective links in the electricity chain (in this case production,



transport and delivery). The technical supervision is therefore the basis for the realization of the relevant aims, *a reliable and guaranteed provision of services* (“*security of supply*”), *sustainable energy supply and energy conservation*.

Sustainable energy is slowly emerging on Curaçao as well, but more incentives (legal and financial) are required for investors to be able to realize the aims of the energy policy and the new policy framework in due course.

Point of departure for the *legal supervision* is the concession. This is the specific permission granted by the government to an electricity company to produce power or else make it available to consumers. The concession is granted by the government by national decree, for a specific period of time following advice acquired from the Bureau. In the concession also the rights and obligations of the concession holder are regulated by the government. In view of the importance of the concession, a concession policy has been outlined based on the current National Ordinance in conformity with the new market model.

A second element of the legal supervision is the agreement concluded between the supplier and the end consumer. As the aim of guaranteeing the interests of the consumers in large part pertains to securing the rights (consumer rights) of the end consumers, the legal supervision also contains the *consumers' supervision*. In the scope of consumers' supervision the following aspects will be regulated to strengthen the position of the end consumers of electricity: universal provision of service, the general terms, the delivery conditions and delivery period, billing and collection, the shut off policy and the handling of complaints and disputes.

The last of the three elements in the supervision framework is the *economic supervision*. This concerns the regulation of economic aspects and is aimed at the stimulation of a good market system. Important economic aspects herein are: rates, quality and transparency with the aims being low rates, high quality and high transparency (which will allow the end consumer to make the right decision). Besides this, a specific condition for electricity is that in the scope of the universal provision of service everyone must have electricity at his disposal, which translates into affordable and reliable provision of services.

Another important objective of economic supervision is the reform of the electricity market by means of introducing more market orientation into a formerly closed market model, which departs from one dominant party without the right regulatory framework. Experience has taught that without economic regulation and market orientation of the market parties, particularly for a monopolistic or dominant supplier there are no, or only few, incentives to observe transparency, to produce efficiently or to orient itself on the dynamics of the market. Therefore market-orientation combined with economic regulation is an essential component of the new supervisory framework.



The government is convinced that implementation of the new market model and the new form of market regulation will provide more perspectives to achieve the policy aims in comparison with the current situation. This is why the government will see to the fulfillment of all required conditions for this part of its policy to succeed.

PART I:

ANALYSIS OF THE STATE OF AFFAIRS IN ENERGY SUPPLY



I. INTRODUCTION

The population of Curaçao is faced with high electricity rates and frequent interruptions in the supply of electricity. This development has led to many public expressions of discontent by consumers and is also manifested in the negative public opinion expressed in the analyzing interviews held among customers in the scope of accomplishing this policy and supervision framework. The successive Executive Councils of Curaçao have each reacted to this development in their own way, only with the same result eventually: the rates remained high and the quality of the supply still fails due to frequent power failures as a result of the quality of the production units. The result: a continual *public outcry* about the rates and the availability of electricity.

Because of these developments the need to find a solution for the problems of the energy sector is more urgent than ever before and therefore there is a need for a reliable and coherent policy and supervision framework in order to achieve the best possible electricity supply and energy price-setting on the island.

However, a policy framework is an essential element of the solution, but not enough to realize the most important aims. As is generally known from the supervision documentation, policy without supervision (from the part of the government) is not effective in most cases, because self regulation will not provide guarantees that socially unacceptable situations will not present themselves. This way monopolists and other providers with significant power in the market are free to demand prices from consumers that are (too) high. Inefficient production methods may also lead to high rates and finally, an out-of-date system of production may result in problems with the availability of the supply.

In order to prevent cases as mentioned above, supervision plays a prominent role in monitoring the compliance with the policy, with the technical and quality regulations and also, where necessary, with the development of new policies. In view of the aims that were set, this is the reason why the subject of this policy document is an integrated policy and supervision framework for the energy supply on Curaçao. This policy document will elucidate only the outline for regulating the electricity supply on Curaçao: for the production, network and water supply and the supply of fuels we will draw up separate policy documents.



1.1. THE PRELIMINARY STAGE FOR THE DETERMINATION OF THE ENERGY POLICY

In order to achieve an energy policy for Curaçao, the Executive Council at the time decided to set up a dialogue with the principal stakeholders on the island. In 2007 the Dutch Clingendael Institute received orders from the Executive Council to carry out this exercise. The actual dialogue took place in the second half of 2008 and was organized by Clingendael, the VU University Amsterdam and the Delft University of Technology.

A total of forty representatives of various companies and organizations participated in the energy dialogue. Based on the findings and conclusions ensuing from said dialogue these companies and organizations have drawn up an energy policy for Curaçao (to be referred to hereinafter as energy policy). The final report was completed on 21 April 2009 and subsequently approved by the Executive Council. Four focal points of the energy policy can be derived from the end report. These are:

- a. a form of energy supply that uses the sustainable energy sources available on the island as much as possible;
- b. a drastic reduction of the per capita energy consumption;
- c. a transparent and stable system to determine the national energy prices and
- d. confidence inspiring and efficient management and control mechanisms regarding the public and private tasks in the energy sector.

The underlying vision to these policy focal points is based on two basic principles, which are sustainability and good governance.

Sustainability includes a *social* component (i.c. energy policy for the benefit of society), an *ecological* component (i.c. reducing air pollution and greenhouse gas emissions) and also an *economic* component (i.c. the policy contributes to the prosperity of the country). Good governance includes independent monitoring of the policy, public access to information, providing good information to all parties involved and transparency about tasks and responsibilities of the various players, including the government.



1.2. FORMULATION OF THE POLICY AND SUPERVISION FRAMEWORK

As may be deducted from the focal points and the vision, an important segment of the energy policy is the appointment of an independent supervisor by the government. In anticipation of the final design of the supervision in the autonomous Country of Curaçao and in view of the realization of supervision on the energy supply, a collaboration protocol was signed between the Country of the Netherlands Antilles and the Island Territory Curaçao on 18 December 2009, regarding the manner in which the Bureau Telecommunication and Post (hereinafter referred to as the Bureau or BT&P) was able to support the Executive Council in the execution of the supervision on the production and supply of electricity, among other things.

Included in the collaboration protocol is the Bureau's assistance to the Executive Council of Curaçao in the development of the policy and supervision framework, among which the production and transport of electricity. The basic principles in that respect are efficiency, transparency and quality. The Bureau will also be in charge of the execution of the policy and supervision framework, pertaining to the electricity supply in Curaçao after this has been determined by the Executive Council.

Taking inventory of, or else the analysis of the state of affairs, is the point of departure for every form of policy-making. In order to get concrete insight into the actual operation of the electricity sector the Bureau conducted an inventory into the production, transport and supply of electricity on Curaçao at the beginning of 2010. In this regard all prominent parties in the market and stakeholders were brought into vision, the legal framework was analysed, the methodology of production, transportation and supply were checked and the bottlenecks and problems were determined.

With the inventory referred to above in mind and also the basic principles of the focal points and vision for the energy policy as approved by the Executive Council, a policy and supervision framework for the energy sector was drawn up, based on a new market model. Ideally, the implementation of the new policy and supervision framework and the new market model should have the support of adequate legislation pertaining to, among other things:

- a. the conditions for granting a concession, a license or an exemption;
- b. maintaining a reliable network and provision of services;
- c. the manner and extent of service provision;
- d. the protection of the interests of the end consumers;
- e. the regulation of prices and
- f. supervising production, distribution and supply of electricity.



However, in view of the social urgency it was elected to build on existing legislation in order to be able to start the implementation of the policy and supervision framework in the short term. The current legislation pertaining to electricity supply, in this case the National Ordinance on Electricity Concessions (P.B. 1963, nr. 38) and the appurtenant implementing regulations, is considerably outdated and therefore requires renewal at a later stage. Since Curaçao has become an autonomous Country, following the amendment of the Charter for the Kingdom of the Netherlands as per 10 October 2010, renewal of the legislation will need to be taken up by the government of Curaçao.

Furthermore in connection with this policy document and also regarding the point in time of its realization, the following actions will have to be taken:

- approval and adoption of the policy document by the Country of Curaçao;
- formulation of a concession procedure by the Bureau, based on which interested parties may apply for a concession, an exemption or a license;
- compilation of concession formats based on the conditions as included in the National Ordinance on Electricity Concessions and also in this policy document, with further details of the various subjects of regulation and conditions for concessions in implementation decrees;
- drawing up a mandate for the Bureau as supervising body, including the necessary competences and implementation decrees, based on which the supervision and enforcement will become effective. The basic principle for the mandate is the collaboration protocol of 18 December 2009, which upon the new status of Curaçao becoming effective may be converted into a task assigned to the Bureau through a national ordinance by the government pursuant to article 5 of the BT&P ordinance;
- approval of the supervision mandate and the implementation decrees by parliament or the government, depending on whether or not a national ordinance is involved;
- at the same time the Bureau will need to take up the revision of the legislation regarding the electricity supply. In due course, the government will need to present the new legislation to parliament for approval.



1.3. LAYOUT OF THE POLICY DOCUMENT

This policy document consists of three parts. First, in the remainder of *Part I* the links of the electricity chain are identified, the roles of the individual links are described and an analysis is made of the existing legal framework for electricity supply and pricing (Chapter 2). This inventory exercise is completed with an inventory of the bottlenecks in the current electricity supply on Curaçao. As such, in Chapter 3 various cases are discussed for which the policy and supervision framework provide solutions.

Part II deals with the new policy framework in three phases. Chapter 4 deals with the aims, the new market model and its basic principles. The actual details of the policy framework for the supervision of electricity producers, distributors and suppliers are discussed in Chapter 5, along with an explanation of the technical and quality aspects these providers are required to comply with. The policy framework primarily deals with aspects of technical and quality regulation. The policy framework is discussed in further detail in Chapter 6 which includes the technical and quality demands and also some incentive measures to stimulate the production of sustainable energy in accordance with the focal points of the energy policy.

Part III deals with the main features of the supervision framework. In Chapter 7 the legal regulation is addressed, including the concession policy that is to be conducted and the protection of the end consumer as further implemented in this concession regime. At the same time Chapter 8 deals with the economic regulation with the realization of efficient rates, transparency, **market orientation** and long-term planning as its most important subjects.

Eventually, *Part III* is concluded with the necessary conditions, or else the critical success factors, for an effective implementation of the complete policy and supervision framework. Obviously, besides the expertise and independence of the supervising authority, important subjects of this Chapter are the significance of the introduction of effective legislation and expeditious compliance with the responsibilities by the government.



II. THE ROLE OF THE LINKS IN THE ELECTRICITY CHAIN AND THE LEGAL FRAMEWORK

2.1. THE SIGNIFICANCE OF KNOWLEDGE OF THE MARKET MODEL

This policy document is in fact about putting the market model into effect, which is the ground work for the policy framework of the electricity supply in Curaçao. Typical of a market is that it is a place where the supply of and demand for a product or service continuously come together, as a result of which a market price arises at various times. However, this price which arises as a result of the interaction between supply and demand is not always the optimum price, because there are other factors that may play a role when a price comes into effect, such as, among other things, the number of consumers and providers, the extent of their market power and also the ability, in particular of the larger providers, to dictate the price or to shift off the costs of inefficient production methods to the consumer.

The market dynamics outlined above also applies to the electricity market and is therefore more or less dependent on the same factors. One very decisive (f)actor here is the provider of the product or service. A provider caters for a need (i.c. a demand) of the consumer by producing and offering. Depending on the question as to whether there are one or more providers, this will have implications for the market price coming into effect. Because an (unsupervised) monopolist or dominant supplier fixes the prices in the entire market, as a rule the tariffs are higher with a (quasi) monopolistic market model than with a market model which departs from market oriented suppliers, by which the tariffs are pressed down.

Why are the market system and the appurtenant market dynamics so important? Knowledge of the market system of the electricity sector is essential for a government that wants to control matters, because of the social necessity. Curaçao has a monopolistic market system: there is only one provider of electricity. By definition this should not be a problem because also a monopoly can be strictly regulated. However, in practice, when a monopoly is combined with problems regarding availability of electricity or else the quality of the service provided together with rates that are either too high or rapidly increasing, the market system should be thoroughly scrutinized.

However, in the infrastructural market (or market for public utilities) it is not easy to just terminate monopolies, because significant for these types of markets among other things, are the heavy investments in the production and transportation networks and the specific expertise required for the providers to supply the consumers with the product (electricity, water, gas through mains).



This is why, when conducting research of a market system and also in case of an adjustment of a current one, it is important to know which role the individual links play in the chain of the electricity supply.

2.2. SUMMARY ANALYSIS OF THE LINKS IN THE ELECTRICITY CHAIN

The links in the electricity chain are the various sub-activities in the electricity sector that can be distinguished, ranging from generating electricity to supplying the end consumer. We distinguish the following four links:

- a. production of electricity,
- b. transportation of electricity,
- c. distribution of electricity¹ and
- d. supply of electricity

Although especially the last three links are often in the hands of one and the same corporation, in theory the four links are so different from each other, that each one requires a separate form of regulation. The following paragraphs contain further details about the links and the specific market conditions in Curaçao.

2.2.1. The production link

This link generally contains various methods of electricity production, such as (one or more power plants with) diesel generators, coal-fired power plants, wind turbines, solar panels, nuclear power plants or a combination of those. The electricity power plants are connected with the transportation network at various locations.

Basically, this link is aimed at ensuring short-term and long-term availability of sufficient capacity to generate electricity and also to actually produce the required electricity according to the demand, during peak periods as well.

¹ Strictly speaking, meter reading is also a separate role. For the purpose of simplicity the (physical) meter is assumed to belong to the distribution network.



Due to the decline of the availability of crude oil, the subsequent increase of crude oil prices resulting from this and also the concerns for the environment when this type of fuel is used, for years now the production of electricity has been subject to immense technological and sustainability innovations.

2.2.2. The transportation and distribution links

Although the transportation and distribution of electricity are two separate disciplines in the whole of the electricity network, they have been brought together because both form a natural monopoly and it is therefore not required to discuss them separately from the viewpoint of regulation.

In electricity transportation the electricity that is produced, is transported under high-voltage to various distribution stations, while in the distribution link the electricity from these stations is conducted to the end consumer. This final link also provides the physical connection of the customer to the electricity network and the meter reading.

From a technical point of view the transportation network may be interconnected with other transportation networks. In that case electricity may be transported from one to another network. This often happens when excess production in a certain country (or region thereof) is sold to another country (or region). Connecting transportation networks (interconnection) may link markets together. Producers and suppliers will then have more possibilities to respectively sell and purchase electricity.

2.2.3. The supplier link

Supply is the (administrative) purchase from the producer and the delivery of the purchased electricity to the end consumer. In the event that supply is a separate link in the chain, the supplier purchases from the producers via a trade system. Subsequently, the distributor will then deliver the electricity to the end consumer on behalf of the supplier and as a retail activity (which means in many small portions).

Delivery to the end consumer is the final role in the chain and is merely administrative in nature, as the physical supply runs through the transportation and distribution network. In this case, it is the supplier, rather than the distributor who concludes a supply contract, inclusive of the appurtenant rates and conditions with the (private or corporate) end consumer.

²It should be remarked that for natural gas there is no question of a dwindling availability, and therefore the prices are less suppressed

Apart from this, the end consumer has a subscription contract with the distributor for the physical connection, including the meter.



2.2.4. The situation in Curaçao

The technical unbundling in Curaçao between the production company Kompania di Produkshon di Awa i Elektrisidat di Kòrsou (KAE) N.V. (to be referred to hereinafter as *„Aqualectra Production“*) on the one hand and the network company, including delivery, Kompania di Distribushon di Awa i Elektrisidat di Kòrsou (Kodela) N.V. (to be referred to hereinafter as *„Aqualectra Distribution“*) on the other, does not change the fact that there still is a monopolistic market system in the electricity sector. These companies are both owned by one and the same holding company and are ultimately managed by the same group of executives.

As far as the need for electricity is concerned, this can be fulfilled by multiple producers as is already the case on a small scale. Whilst Aqualectra Production may remain a dominant party on the side of the providers in the market in the near future, this does not alter the fact that other producers may fill the void of the existing production shortage which has been the cause of problems with the availability of electricity for quite some time now.

In transportation and distribution the situation in this respect is different. As far as regulations are concerned, these two links in the electricity chain need not be separated and in the future they will have to be considered as a combined link. For both transportation and distribution, a natural monopoly applies. Obviously, a network concession will then require to be exclusive in nature, because it would not be efficient to have multiple parties fulfill this role. After all, multiple network companies within one and the same coverage area will lead to double the costs which will presumably not be compensated by the benefits of an improved market operation. However, it is possible to have multiple networks within one country with exclusivity per geographical sub-area, but considering the size of the coverage area it would not be efficient in this case.

This means that under the structural market system of Curaçao the network company is a natural and legal monopolist (which is similar in many other countries). Given the monopolistic nature of the network position, strict regulation will be required, among other things with regard to rates and quality of the service provision.

In the event that delivery is separated the electricity supplier will be the contracting party towards the customers and said supplier will be required to provide sufficient supply of electricity, based on the market demand and by way of purchasing contracts with electricity producers. In case of separate delivery the supervision will focus on regulation of the rates and measures to protect the end consumer, among other things.



2.3. THE LEGAL FRAMEWORK FOR THE SUPPLY OF ELECTRICITY IN CURAÇAO

It was already pointed out hereinbefore that the urgency in the community, as a consequence of the ever increasing rates and the non-optimum availability of electricity supply, necessitated the revision of the present market-model for the provision of electricity in Curaçao. Apart from a summary contemplation of the links in the electricity chain, it is also of significance in this respect to know whether the existing legal framework offers sufficient possibilities for a modification, if any, of the market-model. For example if the legal framework is oriented to a purely traditional energy supply and there are no provisions for a modern supervisory regime, it is of little or no use to strive for more market orientation without the necessary legislative adjustment.

Therefore an analysis of the existing legislation is also made in this chapter. The knowledge of the way in which the links operate and the adequacy of the existing legislation also forms the basis for determining the general points of departure of the new policy framework in chapter 4. The existing legislation may be broadly subdivided into two categories, to wit:

- a. A national ordinance with resolutions for the implementation, relative to electricity concessions and
- b. national ordinances and resolutions for implementation of same, relative to the rates for electricity supply.

Below is stated an analysis of the most important components of the existing legal framework:

2.3.1. Legislation relative to the electricity concessions

The most important component of the existing legal framework relative to the electricity concessions is the:

- Transitional National Ordinance XXVI: Electricity Concessions (P.B. 1991, no.102);
(to be referred to hereinafter as: the National Ordinance on Electricity Concessions)³

³This is the designation by which the National Ordinance on Electricity Concessions (P.B..1963, no.64) is to be cited

⁴This is the designation by which the National Ordinance on Pricing (P.B. 1964, no.117) has to be cited
Respective to the license or assignment (to be referred to herein after as: õconcessionö), which is legally required for the production and supply of electricity, it may be stated that ever since January 1st 1980 Aqualecra obviously has been operating without a concession as referred to in



section 1, sub-section 1 of the National Ordinance on Electricity Concessions, because the last concession expired on December 31st, 1979. Afterwards no more concessions were issued. For this reason it is stated in paragraph 1.2 that the way to go about determining the procedures and granting of concessions must be initiated as soon as possible after this policy document has been agreed upon and formally accepted.

From an analysis of the National Ordinance on Electricity Concessions it follows that for the purpose of the full implementation of the new market-model, this legislation regrettably still reflects the prevailing views of another era and that therefore it should be updated as soon as possible. In spite of this the implementation of a new concession policy may be initiated, based on the present legislation, in combination with one or more resolutions for implementation. This concession policy is inter-related with a policy regarding the production mix that is required for the long term. In Chapter VII (Legal regulating) the concession policy to be conducted will be further elaborated in paragraph 7.5, based on the present National Ordinance on Electricity Concessions.

2.3.2. Legislation relative to the determination of the rates (including energy rates)

The most important components of the existing legal framework relative to the determination of the energy rates, are the following:

- Transitional National Ordinance XXV: regulating the prices of goods and services and the closing hours of stores (P.B. 1991, no. 100) (to be referred to hereinafter as: the Ordinance on Pricing)⁴;
- Resolution of the Executive Council no. 2000/29272 regarding the restructuring of the electricity rates, whereby the õall inclusive tariffö was introduced as tariff structure as per December 1st, 2000 (viz. also the Protocol on tariff amendments of June 2001);
- Resolution of the Executive Council no. 2002/29843 regarding the conversion of the õall inclusive tariffö into an õall inclusive cap tariffö per January 1st, 2003 and the determination of the requirement of yield at 8% and
- Resolution of the Executive Council no. 2008/61486 regarding the maintenance of the õall inclusive cap tariffö per January 1st, 2009 and the implementation in the future of an independent regulatory system.

The Ordinance on Pricing enables the Executive Council (and nowadays the government of Curaçao) pursuant to section 2, sub-section 1, sub a to interfere in the development of prices for goods and services by establishing minimum and maximum prices. In this case this will always



concern maximum prices. The legal framework for this assessment and determination of electricity tariffs is therefore in principle adequate.

Furthermore the Executive Council of Curaçao resolved by resolution 2008/61486 to determine a legal framework for a new and independent regulatory system ſpurporting to the assessment, determination and establishment of the tariffs for [water and] electricity. This policy paper is to be seen as one of the first steps for realizing this above-mentioned resolution.

However, as already stated in paragraph 1,2, it is now preferable, in view of the urgency in the community, to elaborate further for the short term on the existing legislation, so that the implementation of the new policy and supervisory framework may be initiated. The Executive Council obviously also held the same view, as is evidenced by the following wording of component IV of the aforementioned resolution:

„Anticipating on this new independent regulatory system, the Island Territory Curaçao..... will appoint a regulator for the implementation of the new regulatory system, starting from the moment of appointment of the regulator, until the implementation of the new regulatory system, to assess the requests from Aqualectra regarding an adaptation of the tariffs for [water and] electricity based on the resolution from the Executive Council dated November 8th, 2002 no.(2002/29843) and to render advice on the matter to the Executive Council”.

It is in this framework that on December 18th, 2009 a collaboration protocol was signed in connection with the manner in which the Bureau may render support to the Executive Council when executing the supervision of the production and supply of, among other things, electricity.

After the approval of this policy document and the assignment of the supervision, the revision of the existing legislation may be initiated, in view of the implementation of an independent regulatory system for technical-, quality-oriented, legal and economic supervision (including regulation of tariffs) on the various links in the chain of electricity supply in the interest of the community of Curaçao.



III. BOTTLENECKS IN THE CURRENT ELECTRICITY SUPPLY

3.1. INTRODUCTION

Before developing the framework on policy and supervision, attention should be focused on the actual bottlenecks existing in the electricity supply in Curaçao. For this we apply a market approach, which implies that in this chapter we will be consecutively paying attention to the bottlenecks in connection with the technical aspects of the market demand for electricity supply, the production of electricity, as well as in connection with the transportation and distribution network (inclusive of the delivery), the determination of prices and the regulation of the market.

3.2 THE MARKET DEMAND FOR ELECTRICITY IN CURAÇAO

The demand for electricity is determined by the need for electricity of the end-consumers, namely the private households and the business consumers, (such as the government, companies and other institutions).

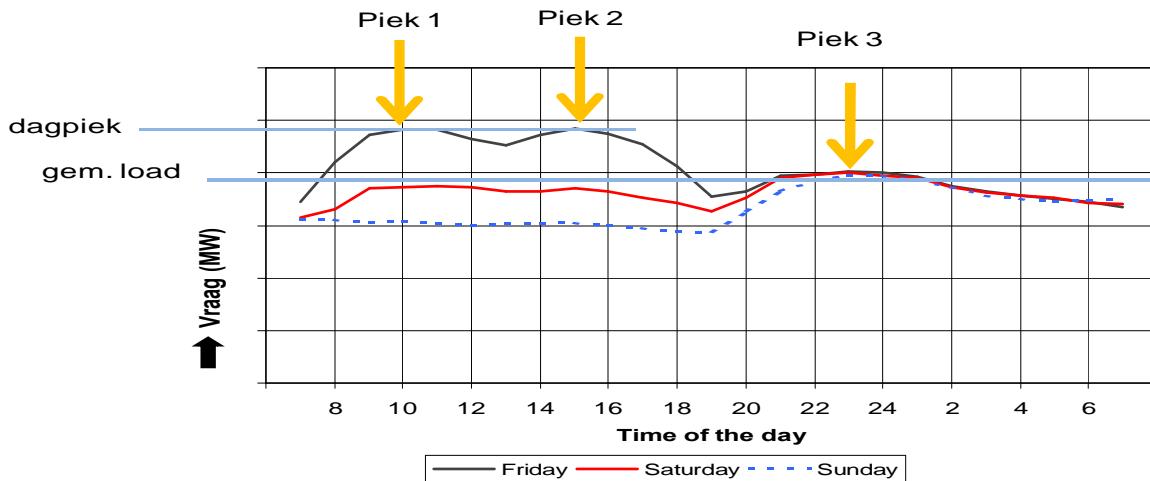
3.2.1. Analysis of the demand on a daily and a weekly basis

At the moment the need for electricity in Curaçao and along with this the provision (öloadö) during the day is relatively constant with the exception of three peaks, namely: about 10:00 hours, 15:00 hours and about 23:00 hours, a lower peak in comparison with the first two peaks. The maximum *daily* need for, or, as the case may be, demand for electricity in Curaçao manifests itself during the first two peaks and at the moment it amounts to approximately 135 Megavoltampères (MVA).

In the week-ends (particularly on Sundays) the consumption is significantly lower by comparison with week days. Below you will find all this represented graphically.



Graph 1. Analysis of the demand for electricity on a daily and weekly basis



The above implies that especially the need of the business community has a great impact on the total demand for electricity. For the year 2010 the total consumption on an annual basis is indicative of 665 gigawatt hours (GWh). Out of this approximately 400 GWh (60%) is being consumed by the business community and 265 GWh (40%) by private households

A conclusion is therefore justified that the economic development (with as a consequence an increased need for electricity) has a great impact on the total demand for electricity. In similar circumstances the demand will therefore only be a bottleneck if the production equipment should be qualitatively and quantitatively unable to meet the demand in the economy. If, however, there would be a situation of a growth scenario, that is an increase in business activity and industry, this becomes a complicating factor for the energy supply.

As far as the long term is concerned, the prognosis, departing from the basic scenario as inserted in the Plan 2030⁵ of Aqualectra, predicts that in the year 2020 there will be a strong increase in the demand for electricity. The projected growth is primarily attributed to the economic development. Thereby the peak load on a daily basis will increase from approximately 135 MVA in 2010 to approximately 200 MVA in 2020. This then will be typically a bottleneck created by the demand, as referred to herein before.

⁵Source plan 2030 Aqualectra, Annex B (Development of demand)



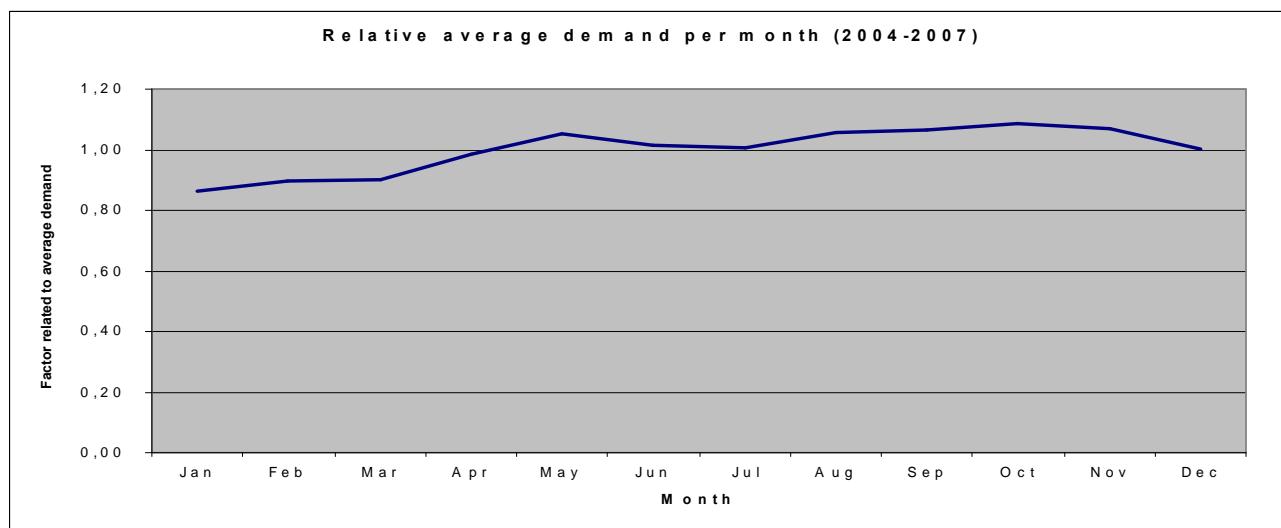
If this basic scenario indeed manifests itself, the production capacity will have to be substantially enlarged to meet the increased demand in the coming years, even more so because with the present capacity insufficient guarantees may be given for the *security of supply* during the peak hours.

3.2.2. Analysis of the demand on a monthly basis

During the year the demand grows steadily from January on, most likely primarily due to the heightened use of air conditioning for objectives of the business community during the periods of calm, when there is hardly any wind and during the extra hot months of the year.

In the months of June-July the demand decreases, most probably because of the vacation, to start increasing again to reach its peak again during the months September-October. In the months November and December the demand decreases again until January. At least that is the experience based on the average demand per month during the period from 2004-2007. In the graph below all this is reflected.

Graph 2. Analysis of the demand for electricity on a monthly basis.



The change in the monthly production during a given year entails a bottleneck, namely: that the production must be co-ordinated and adapted from month to month to the fluctuating demand for electricity with all the technical consequences this entails. The change in demand for electricity during the year is met by causing the production units of Aqualectra Production to operate on strengths of output according to need. This is called *netbalancing*. To the extent that the production units are operating on an acceptable level as to capacity, this netbalancing causes few problems. This is different when there are extended periods of problems with one or more production units, as has been the case during the year 2010.



3.3. BOTTLENECKS IN THE PRODUCTION OF ELECTRICITY

As became evident above the demand for electricity cannot be seen in isolation, but it must be viewed in correlation with the supply of electricity. The supply in its turn depends on the production of electricity. If there is no, or insufficient, production, then this is a õdarkö outlook for the community in a literal as well as a figurative sense. This outlook also implies a slow development of the economy. In order to prevent this outlook, it is therefore essential that there ought to be a *sufficient* and *stable* production and supply of electricity.

õSufficientö means that in principle there is enough to meet the effective demand of everyone for electricity. The condition of a stable demand goes a little further: the structural ability to meet the effective demand must be reasonably secure, (in this respect the term õsecurity of supplyö) is used. In other words the supply must be sufficient in a structural way to be able to meet the effective demand.

The relevant question is now: is there *sufficient and stable* production of electricity in Curaçao? This implies that an assessment has to be made of the entire production plant or óapparatus, since as stated above the supply of electricity is determined by the actual production.

3.3.1. Mundo Nobo

The present production units in Curaçao are almost all owned by Aqualectra Production. The primary production units are located at Mundo Nobo. It is a generally known fact that the gas- and steamturbines at Mundo Nobo should have been taken out of current use years ago, (the so-called õdecommissioningö), because their term of life had expired years ago and they are maintained in operation, õin the airö as if by stage machinery. Accordingly these turbines are no longer sufficiently reliable and in fact inefficient, which means too expensive for the production process. At the moment only 66 of the total production capacity of 84 MVA (approximately three quarters of the total power potential is available at Mundo Nobo.



3.3.2. BOO

The BOO-plant of the CUC which primarily has to provide the ISLA with electricity, was disabled and out of production for quite some time during the year 2010. The plant is again in operation now, but is not at all reliable for the future. According to its contractual obligations, the BOO plant should supply a minuimu of 24MW of its over-production to the distribution net (of Aqualectra). Since the BOO plant came into being this has not been feasible for most of the time.

3.3.3. Tera Kora and Playa Kanoa

The two wind farms at Tera Kora and Playa Kanoa of Aqualectra and NuCapital are being replaced at the moment and it is expected that they will supply the distribution net with approximately 30MW but not before 2011. For the time being only Playa Kanoa supplies just a little bit of electricity to the net, but insufficient to solve the availability problem on the island.

3.3.4. Dokweg and IDPP

The other plants, namely the diesel generators at Dokweg and the IDPP plant at the grounds of ISLA run reasonably stable, but particularly the latter plant is sensitive for strikes at the refinery. If the gates there are blocked for a long time, as happened before, the continuity of the production and supply may be endangered, because the personnel cannot get access to the plant, or, as the case may be, cannot be relieved from their shift of duty.

The inference may be drawn that the total available production capacity under the present circumstances is insufficient to meet the daily peaks in the need of approximately 135 MVA in a structural manner. Therefore by additionally operating Aggreko emergency power supply units (42 MW in September 2010) the production capacity is somewhat maintained at an acceptable level by Aqualectra. Operating the Aggreko emergency power supply units seems to be a good temporary solution for eliminating the electricity deficiency, but it should be investigated for the long term in view of the consequences as to the rates for the end-consumers.

3.3.5. Conclusion regarding the bottlenecks

Based on the above the inference may be drawn that the present production apparatus is not efficient (and thus expensive), utterly insufficient and very unstable. Therefore, as is generally known, regularly switching on and off by turns is necessary, resulting in many power failures on relatively large sections of the island. This bottleneck of availability therefore has the highest priority in view of the economic and societal interests and should be structurally redressed as soon as possible.



3.4. BOTTLENECKS IN THE DISTRIBUTION NETWORK AND THE SUPPLY OF ELECTRICITY

3.4.1. The present electricity network

The electricity network of Aqualectra consists of a transportation network and a distribution network.

The transportation network transports the electricity over the long distances with a *high-voltage* [of 66 kilovolts (kV) and 30 kV] in order to limit the losses. It is a network made of steel with a high degree of redundancy. The most important bottleneck in the transportation network is the coupling of ISLA to the public network: there is a risk in the event of interruptions.

The distribution network transports the electricity by means of a *median voltage* of 12 kV from the transportation network to the service areas (or zones). The 12 kV distribution network has been constructed for the greater part in a ring structure and is located underground for 60% of it. From the 12 KV network the end-consumers are reached by means of the low-voltage distribution network, whereby 12 kV is reduced by transformers to 127V, 220V or 380V. The *low-voltage net* has been constructed above ground through the well-known electricity poles along the roads. The age of the distribution network in the various districts varies greatly and this determines the investments which are necessary in the future.

The inference may be drawn that the transportation and distribution network installed seems to be qualitatively sound. Apart from that, efforts are made for the harmonization with the 230/400V 50Hz-standard, which will further stabilize the network.

3.4.2. Network-management

In order to continuously maintain a view on the performance and the state of the transportation and distribution network, a control center has been put in place. This control center at the moment, in accordance with international standards, applies a reasonably good regimen to the (66kV ó 12 kV) network. No great investments are necessary in this respect. By means of a *Supervisory Control and Data Acquisition* (SCADA) monitoring- and management system the network is continuously managed up to the 12 kV level. The network management herewith complies with the basic functionalities for a *smart grid* and is more than sufficiently equipped to facilitate greater in-feeding, as well as small-scale in-feeding.



3.4.3. Suitability of the infrastructure for the reverse supply of sustainable and non-sustainable energy.

At the moment decentralized in-feeding of electricity by (medium)large producers of electricity via the transportation network is not yet possible to an optimum effect. Aqualectra is indeed in the process of developing a masterplan to facilitate non-plant in-feeding via the transportation network. This plan provides for a second 66kV station at the plant at Dokweg and four geographically spread loadcenters, of which primarily Montagne still has to be implemented.

According to this concept the present large production units are connected to a minimum of two 66kV or 30kV stations in order to create more redundancy. By the four geographically spread loadcenters a flexibility comes into being in connection with the possibilities of in-feeding. All the present production units are linked to the 66kV net (IDPP and BOO) or the 30kV net (Dokweg and Mundo Nobo). New large electricity producers (sustainable or non-sustainable) may therefore be linked to six geographically spread locations in the future.

The potentially largest numbers of users with reverse supply are connected to the low-voltage network. Here there is no impediment either, technically speaking, for a broad initiation, because the 12kV network is for certainly 80% in good order and redundantly installed. For reverse supply this means that such may be started.

At certain weaker points in the network a temporary limitation of transportation (for reverse supply) may be imposed during a period, which provides time to the distribution company to make the network suitable within a reasonable period. It is customary for that matter to impose limitations through regulation on the degree of reverse supply, to ensure the protection of the proper functioning of the network. This may be achieved, for example, by way of limiting capacity on transformer level to reduce the risks of overloading the system. This has to be laid down in implementing regulation. The effect is that this may prevent that on street level at a given moment the capacity for reverse supply is exhausted and the subsequent applier who comes forward has to wait for adaptations to the network.

If the electricity meter is disregarded in this respect, there are no other technical limitations from the viewpoint of the network, which have to be covered by implementing regulation.



3.4.4. Disruptions and switching off

Although there are no data (yet) available concerning disruptions per each section of the network, Aqualectra assumes an elimination of the disruption within two (2) hours. In practice, however, the actual performances are at any rate overshadowed by the problems at the various production units (See above)

There is therefore a question of a bottleneck as far as multiple disruptions are concerned, which obstructs the security of supply. These disruptions reflect badly on the distribution function, because the responsibility lies with that function to switch the load off at a shortage of production capacity. This switching off when there is a shortage of supply is called *load shedding*.

The network provides for a fully automatic gradual off-switching of the load (i.e. schematic), whereby certain residential areas (category 1 and 2) run a greater risk of being switched off and the rest to a much lesser degree. At longer periods of switching by turns, the schedule for switching (off) is adapted between times. Whenever a shortage threatens, (in deviation from the schedule) a preventive switching off is planned and this is publicly announced in advance. Although switching off ought to be a great exception, the above-mentioned procedure does prevent a total *black-out* of the distribution network.

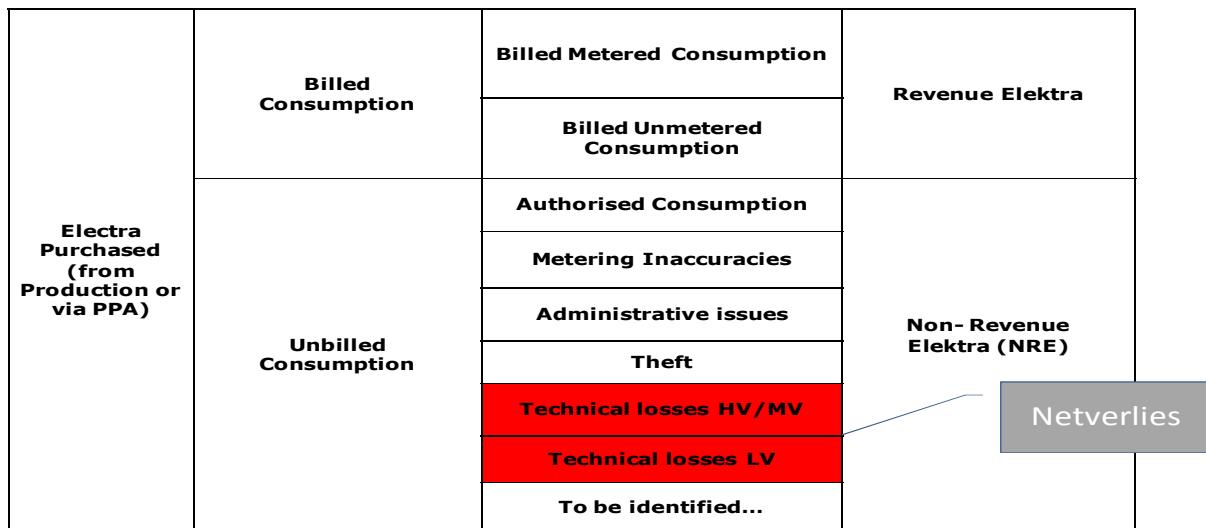
3.4.5. Non Revenue Electricity (NRE)

One of the criteria for measuring the quality of the network for electricity, is the so-called non revenue electricity. The non-revenue electricity has two components, technical and administrative non-revenue electricity. The total loss of electricity is called *Non Revenue Electricity* (NRE), this is all the produced/distributed KWh which is not, or cannot, be billed.

As a rule losses are inevitable by heat loss on the cables, which increases at decreasing voltages. Heat loss also occurs at transformers and with other network elements. This is called *technical non-revenue electricity*. Apart from this there also exists *administrative non-revenue electricity*, which, among other things, arises through differences in measuring and through fraudulent acts by the end-consumers.

Based on the model depicted below, in order to distinguish between both categories of the non-revenue electricity Aqualectra has been reporting on the NRE since 2004.

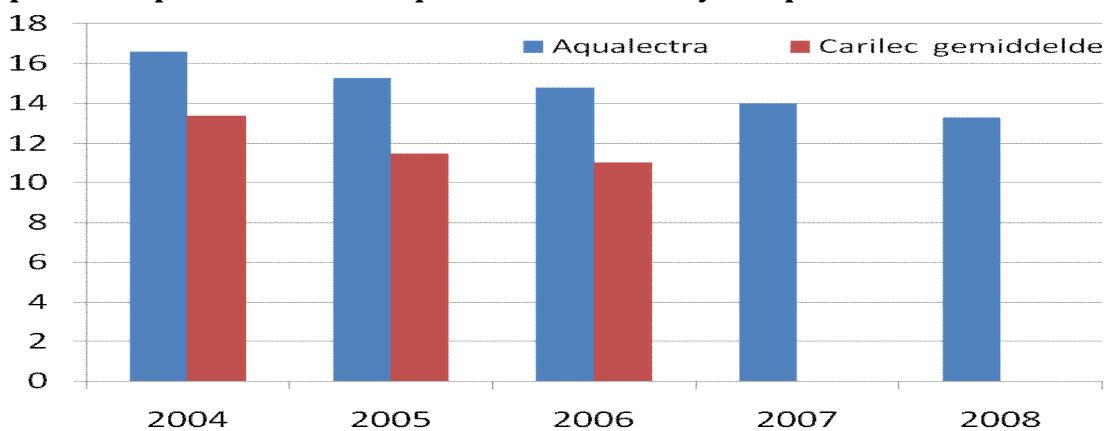
Table 1. Types of non revenue electricity.



Since 2004 (16,3%) a decreasing trend has been visible in the NRE. For 2010 it is predicted that the outcome of the NRE will probably be 12%. Since there will always be non revenue electricity, it should be stated here that there is a theoretical floorlimit to NRE. In the Netherlands it is said that the non revenue electricity in the distribution network amounts to approximately 4% and in Aruba it is approximately 5%.

In order to determine the acceptable range for the local NRE, it has to be benchmarked against NREs of other comparable utility companies in the region. This is executed by CARILEC (Association of Utility Companies in the Caribbean Region) every few years by order of its members. The results depicted below indicate that Aqualectra in the period 2004-2006 still lagged behind when compared to other utility companies within the region.

Graph 3. Comparison of NRE Aqualectra with utility companies CARILEC





This comparison, however, is merely indicative, since the reliability of the CARILEC figures is not unshakably confirmed. Also, significant differences exist between the various utility companies, in terms of, for example, geographical characteristics and population density.

Anyhow, when regulating the quality of the network, attention should be paid to the realization of the least possible NRE. At this moment the outcome of the NRE-target of 6-8%, according to an estimate of the Bureau, would be reasonable. This level has been estimated on the basis of the NRE of other countries in the Caribbean Region.

3.5. BOTTLENECKS IN THE PRICE DEVELOPMENT OF ELECTRICITY

At the moment the price of electricity in Curaçao is one combined tariff for production, network and supply. Therefore there is insufficient insight into the individual costs for the three links on which the tariff should be based.

Furthermore, in comparison with the rest of the region, it may be said that the rates for the end-consumers in Curaçao are relatively high, as compared with cost-oriented countries, approximately 30% higher.

The general perception is that the price, (also because of inefficiencies and high NRE) is too high, whereas the quality of the services falls short of the expectations. Also the tendency to produce one's own electricity is indicative of tariffs that are too high.

The exorbitant tariffs have an impact on other prices and may therefore have a negative effect on the economic development by the high *cost of doing business*. Finally the present tariff structure is experienced as being incorrect. In this way the corporate community rendering business services and other private quantum users, are subsidizing the other sectors by the present tariff structure..

3.6. BOTTLENECKS IN CONNECTION WITH MARKET REGULATION

The organization of the electricity market primarily takes place through market regulation, or economic regulation of the electricity market. The process of market regulation knows two main aspects, to wit: a legal aspect and an economic-technical aspect. These are respectively:

- a. granting a legal concession for the production, transportation or supply of electricity (or for all three links) in view of the household and the business consumption and



- b. the economic-technical regulation of various aspects of the concession, such as universal provision of service, quality of the service (ösecurity of supplyö), price development by the provider of electricity, the terms of delivery in view of an adequate provision of service to the community. In recent years has been added the role and participation of sustainable energy provision in the total production of electricity.

For both aspects of the market regulation further elaborations on which bottlenecks may be ascertained, are stated below.

3.6.1. Concessions

Respective to the concession, it may be stated that since January 1st, 1980, Aqualectra obviously has been operating without a ölicenceö or an öassignmentö as referred to in section 1, subsection 1 of the National Ordinance on Electricity Concessions, because the last licence expired on December 31st, 1979. Afterwards no more licences were issued. For this reason it is stated in paragraph 1.2 that the way to go about determining the procedures and granting of concessions must be initiated as soon as possible after this policy document has been agreed upon and formally accepted.

3.6.2. Market regulation

Up to now the regulation of Aqualectra was practically fully oriented to the tariffs. Despite this the tariffs have considerably risen during recent years. Market regulation, particularly in the case of a monopolistic provider, requires the regulation of various other aspects which are of significance for the end consumer and for an energy provision of good quality for the benefit of the community and the economic development. Herewith one might think of the quality of the services rendered, the conditions on which such services are rendered.

In the absence of regulation in the sense as stated above, the conditions which are of significance to the community and the consumers, have been instituted by the monopolist and this primarily from its own company perspective. Also because of this there are inefficiencies in the energy sector, exorbitant tariffs and a relatively low availability. At unexpected moments there may be a power failure with all attendant consequences for the people, the companies and other institutions. This situation has primarily come into being through lack of supervision by an independent regulator. The independence of the regulator is in this situation an essential condition for a stable development of the rates and improvement of the reliability in the provision of energy.



PART II: MAIN FEATURES POLICY FRAMEWORK ENERGY SUPPLY



IV. OBJECTIVES AND GENERAL PRINCIPLES OF THE POLICY FRAMEWORK

4.1. GENERAL PRINCIPLES

As is known the regulation of the electricity provision up to now only concerned regulating the rates payable for electricity. The energy policy referred to in paragraph 1.1 provides the basis for the market regulation new style. This new market regulation, i.e. the regulation of the electricity sector as expounded in this policy- and supervision framework, will be effected on the basis of a new market model (to be elucidated later) and a greater range of regulating than only the price regulation.

The general principles of the new type of market regulation may be derived from the most relevant resolutions of the former Executive Council⁶ of Curaçao and the collaboration protocol between the former Country Netherlands Antilles and the Island Territory Curaçao.

As a general point of departure is indicated in the aforementioned collaboration protocol that the supervision of the companies Aqualectra and Curoil is oriented to causing those companies to function as efficiently and transparently as possible and to safeguard the interests of the consumers. Within this framework the main points of attention are: efficiency, transparency and the safeguarding of the interests of the consumers.

Efficiency primarily revolves around a reasonable development of the operational costs (input) in proportion to the production (output), as well as preventing NRE to the extent possible in view of realizing reasonable tariffs, or facilitating an affordable provision of service to the public. Respective to the output or production, the primary points of departure are *stability in the energy provision* (security of supply) and a gradual transition to more sustainable types of generating energy in the interest of the environment and the height of the tariffs.

In this respect it is a widely known fact that market orientation (i.c. the presence of competition) has an upward impact on efficiency and therefore a downward impact on the rates payable by the end consumers. If a market has a (quasi) monopolistic character, the introduction of more market orientation implies a greater orientation to the needs of the end consumers, to wit lower tariffs, a better availability of electricity and a cleaner generation of energy.

⁶ EC resolution 29843 of 2002 and EC resolution 61486 of 2008.



Transparency contributes to the necessary insight into the operational processes, by which cross-subsidizing and exorbitant rates may be prevented. In order to improve transparency, measures should be taken into account to achieve the technical and financial unravelling of the links (production, transportation and supply).

In addition to transparency, however, an effective market regulation also requires supplementary measures *for the safeguarding of the consumer interests*, such as, among other things, the supervision on the conditions for the supply and contracting, securing universal provision of services and the presence of an adequate procedure for dealing with customer complaints.

Finally the Executive Council of Curaçao made the decision some time ago in its resolution 2008/61486 to introduce a legal framework in due course for a new and *independent regulatory system*. An independent system of market regulation is therefore also one of the general points of departure for the policy- and supervision framework.

Based on the above-mentioned general points of departure the most important objectives are formulated in 4.2. for the new policy for regulating electricity and in the following chapters they will be elaborated in a more detailed manner.

4.2. OBJECTIVES OF THE POLICY

The macro-objective of the policy is to provide for an efficient and high quality and sustainable electricity supply for the benefit of the business community and private households in Curaçao. In order to implement this macro-objective, six material policy objectives have been conceived in connection with the provision of energy, based on the general points of departure of policy as expounded hereinbefore. These policy objectives are:

1. the realization of an affordable provision of service through a stable development of tariffs;
2. the realization of a reliable provision of service regarding the availability of electricity for the benefit of the business community and the private market;
3. the structural safeguarding of the interests of the end consumers of electricity;
4. the introduction of more market dynamics into (parts of) the electricity sector and
5. the realization of more sustainable provision of energy and the realization of the necessary medium-term conservation of energy and
6. the introduction of an independent type of market regulation.

4.2.1. Affordable provision of service



Since, as was stated hereinbefore, electricity is among the elementary necessities of life, the provision of same must therefore be available against affordable rates. The present rates for electricity are experienced as too high, according to societal and economic standards and they must be reduced in due course by, among other things, efficiency measures, permitting people to generate their own electricity and the introduction of more market dynamics (particularly in the production of electricity).

The system for the development of prices must be transparent and predictable, as well as based on an efficient business operation. With this objective in mind the inefficiencies (among which the NRE) must be rapidly reduced to a more acceptable level.

Finally the social subsidizing by artificially keeping certain rates low, must be replaced by a special social policy.

4.2.2. Reliable provision of service

The provision of electricity, similarly as for example water, is a necessary commodity in the daily life of the citizens, because it provides for or, as the case may be, aids in providing for essential household and business needs. Therefore the reliability of this provision is of utmost significance for the community and it should therefore be structurally safeguarded.

For these above-mentioned reasons there must be sufficient production capacity available in Curaçao, (including reserves) in order to be able to fulfil the effective demand for electricity by the citizens, also during peak hours. This implies that the electricity supply should at all times be reliable with a minimum number of disruptions and interruptions in the supply. Switching on and off alternately due to insufficient capacity, must be prevented as much as possible.

Finally the quality of the generated current (voltage and frequency) must be in compliance with the customary international standards with a minimum of variations, in order to prevent damage to, or, as the case may be, a negative impact on the lifespan of peripheral devices.

4.2.3. Safeguarding the interests of the end consumers

Since the market for electricity, at any rate, as far as transportation is concerned, will on the long term continue to be a monopolistically oriented market, the safeguarding of the interests of the end consumers is of essential interest. Consumers will therefore always have a subscription contract with the monopolistic transportation company and perhaps a supply contract with a supplier. The conditions on which the services will be rendered (subscription and supply conditions) will have to be tested structurally whether they are fair and equitable and in



accordance with the attendant requirements, such for safeguarding the interests of the consumers in the framework of the new market regulation.

Furthermore a transparent, effective and low-threshold procedure for dealing with complaints must be accessible. It should be contemplated, for example, to introduce a compensation for the benefit of the consumers in the event that the established criteria for elimination of disruptions have been exceeded.

4.2.4. Introduction of more market orientation

In many countries market reform is an essential component of the policy of the sector. Thereby market orientation as an instrument for improvement of efficiency in a specific sector, plays an important role. Market orientation implies that the regulated entities should pay more attention to the needs of the (target) markets and is thus going to fulfill the needs in a more efficient and effective way. The supporting view being that through introduction of the necessary incentives and requirements for promoting more market orientation in the energy supply, the quality of the services and the availability of electricity will improve for the population in the long run. Market orientation will also force the supplier to produce more efficiently, resulting in lower tariffs for the end consumer.

4.2.5. Introducing sustainability and conservation of energy

Given the increasing scarcity of fossil fuels and the price development in connection therewith of recent years, the local air pollution and the emission of CO₂ (the greenhouse effect) and the impairment of the environment it entails, room is also created in the policy framework for long term objectives, which are mentioned in the energy policy of Curaçao.

The first long term objective is making the energy production more sustainable⁷ by utilizing sustainable sources of energy in the country as much as possible. By making use of sustainable energy sources, gradually the dependence on fossil fuels will dwindle as a significant expenditure for electricity production.

The second objective is the reduction of the energy consumption by private households and businesses, leading to lower electricity costs for consumers and to fewer investments being necessary in the infrastructure. Indicatively energy saving of 40% has been inserted in the energy policy in the year 2020.

4.2.6. Independent market regulation



The regulation policy of the past few years was solely oriented to the tariffs for electricity [and water] and not to other elements of the provision of service, such as, among other things, the access to the net, the quality of the provision of service, promoting a higher degree of availability and supervision on the conditions for subscription and supply to protect the end consumer.

Above-mentioned elements of market regulation are, apart from tariff regulation, also subject to supervision by an independent supervisor, for the purpose, among other things, of increasing the degree of efficiency, contributing to greater availability of electricity, more transparency in the organization of the production and in the cost, as well as safeguarding the interests of the end consumers.

4.3. INTRODUCTION TO THE NEW MARKET MODEL AND POLICY FRAMEWORK

The new market model is based on the introduction of more market orientation into the electricity market. Point of departure is that the electricity market is further developed by reform. The term *öreformö* in this context means introducing new market models and the attendant regulation models, which aim at creating better *öincentivesö* for efficient operational activities by providers of electricity. A new market model might imply, for example, creating more market orientation in (part of) the market.

⁷By improving the sustainability is to be understood in accordance with the energy policy of Curaçao (see page 11 of the report) utilizing the sustainable energy sources present on the island, particularly wind, sun, biomass, and residual currents.

The reform of the electricity market through introduction of more **market orientation**, follows the international developments in the field of utility regulation.

Particularly the positive consequences for the end consumers and the society as a whole respective to the introduction of more market orientation in the telecommunications market are a significant example and motivation for reforming the electricity market. Regulating the market, it is to be anticipated, will lead to more market orientation and will be oriented to efficiency, factors which in a (quasi) monopolistic situation have remained under-exposed, because the monopolistic or dominant supplier does not heed signals from the market sufficiently



At an analysis of a few Caribbean countries (among which are Barbados, Belize and Jamaica) it has been ascertained that the countries which have liberalized (reformed) the electricity market utilize more alternative sources of energy and have lower tariffs. Obviously market orientation plays a significant role in attaining the stated results.

In the new policy framework the realization of the objectives described above, must be pivotal, whereby a reduction of the tariffs for the end consumers for the short term has the highest priority in a societal, economic and political sense. In order to achieve this, according to the new market model, first and foremost the production function must be structurally separated from the transportation function and the supply function, so as to gain more transparency in the structure of the electricity rates. For the present monopolist, this at any rate implies a complete disentanglement of the technical and financial activities in those links.

As a consequence of the new market model the three distinctive links in the system of market regulation, at any rate in a conceptual and financial-administrative sense, are considered as separate, and all the links are (to the extent necessary) subject to other market regulating rules, because they each fulfill a specific role in the electricity chain. Below the points of departure of the policy for the links in the new market model, are elucidated one by one.

4.3.1. Production

In the production link there is at present dominance of the *incumbent* enterprise (Aqualectra Production). The production link, however, is not a natural monopoly.

In the new situation the production link shall be regulated as a separate component of the electricity chain through the granting of concessions which will be subject to the necessary conditions. Thereby market orientation will be introduced.

In this case therefore the existing producers of electricity will receive a concession as a consequence of the new market model, in order to generate electricity in the local market. In the concession further requirements will be stated for, *inter alia*, the method of production, the output of power of the production, the tariff structure and the development of prices.

In the event that the production capacity should not be sufficient, through which the availability problem will not be solved with the present producers, new concessions -in principle- will have to be granted by putting out tenders, based on the needed extra capacity. The total need of capacity will be determined when granting a new concession, based on an appraisal of the demand for electricity in the country.

Because of the market orientation innovations and investments will be stimulated, whereby expectations are that the quality of the entire production apparatus of the producers jointly and therefore the availability of electricity, will improve. The new regulation will also see to a



maximum input of sustainable energy sources and an efficient production of electricity, which will exercise downward pressure on the price level. Expectations are that in this way in due course the most important objectives of the new policy framework will be realized, to wit affordable prices and reliable provision of service through market reform and the introduction of more market orientation (the third objective!).

Also, pursuant to the new policy framework, the *corporate end consumer*, with the necessary licences (among which a production- and an environment-protection licence, which might be subject to conditions) and while retaining the connection to the distribution net, will be able to produce unlimited electricity for its own use, all this provided that reasonably there does not exist a sustainable alternative.

Besides this, particularly end consumers will also be granted the opportunity to produce sustainable energy for their own use and to supply their surplus power to the distribution net against payment. For private persons this has entirely been liberalized up to 10kW, for corporate end users a maximum of 100kVA is operative, as well as a licensing system. The connection to the distribution net will be standardized in those cases and the rate for the reverse supply will have to stimulate the production of sustainable energy.

4.3.2. Transportation and distribution

The distribution company is the party who (exclusively) transports the electricity produced from the production units to the consumers through the transportation- and distribution network. Because of the high cost of duplicating, the transportation- and distribution network provides the manager of same with a natural monopoly respective to other providers. It is not efficient to have more parties fulfill this function. The distribution company will therefore continue to be a monopolist within its service area in this market model.

Based on the foregoing it is in principle a foregone conclusion that transportation and distribution will continue to be a monopolistic activity of Aqualectra Distribution. The distribution company is in charge of monitoring the balance between supply and demand and it should therefore direct the producers in a non-discriminatory manner. It sees to the necessary network adaptations, sees to the connections for the users and takes the readings of the meters.

In view of its special position, this activity will have to be regulated effectively through an exclusive concession and supervision, among other things relative to quality and tariffs, the more so since the monopolist in this link will possibly have dealings with multiple producers and suppliers at the entrance, as well as at the exit.



Finally through the improvement of efficiency the distribution company will gradually reduce the rates, as a result of which this will have a positive impact on the rates for the end consumers in due course.

4.3.3. Supply

For the supply link there neither exists a natural monopoly. Whoever supplies, purchases the electricity, does the billing and collects the tariffs.. Pursuant to the new market model, all end consumers will be enabled to conclude a supply contract with a supplier of their choice in a second implementation phase. The supplier takes care of the purchase and transportation of electricity and delivers the electricity (in an administrative sense) to the end consumers. This phase will only be implemented after the necessary evaluation and (policy)investigations have been conducted.

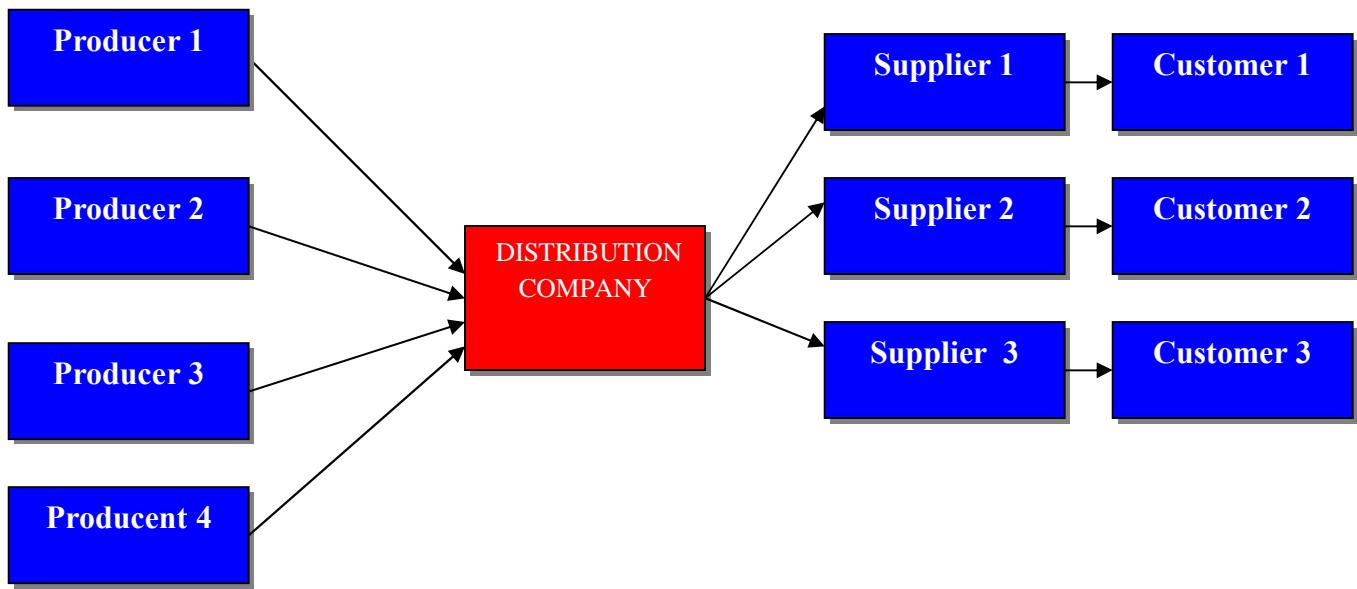
All suppliers have contracts with the distribution company in this case. The distribution company periodically co-ordinates with the suppliers which clients belong to which company. The distribution company will provide the readings of the meters on a monthly basis, so as to enable the supplier to do the billing to the end consumers. The distribution company bills the costs of its own activities through the intervention of the suppliers to the end consumers. This system is currently operative for the collection of garbage by Selikor N.V. (the latter bills the cost of its services via Aqualectra Distribution to the end users).

Finally, the supply conditions will have to be structurally tested as to being fair and equitable and will have to be adapted where necessary by the supplier. In this respect an effective, transparent and low-threshold procedure for complaints must be introduced.

4.4. IMPLEMENTATION OF THE NEW MARKET MODEL

The implementation of the new market model will not be effected abruptly. It will have to be introduced in phases in order to enable a smooth implementation of the new policy and the therewith connected developments. The new market model will look as follows in a graphic depiction:

Figure 1: schematic depiction of the new market model



The first phase of implementation will consist in the assessment of the granting of concessions to more than one prospective producer of electricity. The possibility of inter-connections with other islands or countries will also be investigated in this phase. In this phase the distribution company will have to grow into its role of facilitator to deal with more than one producer, in order to achieve a reliable and efficient provision of service and electricity supply.

During the second implementation phase the other components of the new market model will be implemented, after the necessary evaluations have been made. In the event that the second implementation phase is implemented, the end consumers are enabled to choose a supplier who is operational in the market. Therefore the present legislation will have to be amended.

In this phase the distribution company must continue to grow into its role of facilitator, in order to be able to deal also with more than one supplier eventually, besides dealing with more than one producer. The other measures in connection with supply (a regulation for damages, a procedure for complaints, and the like) will also be implemented in this second phase.

The gradual evolution of the sector will be conscientiously followed during the implementation in phases of the new market model, based on which each subsequent step in the implementation process may be made. Continuous evaluations shall be performed throughout all the phases to analyze the developments relative to the stated objectives. At least six months prior to the end of the first implementation phase, the supervisor will have to conduct a policy investigation on the degree to which the objectives stated in the policy and supervisory framework have been attained. Thereby it should be judged if there are no unsurmountable objections to initiate the



4.5. RESULTS OF IMPACT STUDY CONCERNING THE NEW POLICY FRAMEWORK

4.5.1 Introduction

The implementation of a new market model entails a new form of market regulation. In order to assess the quality of the new regulation system a number of methods² may be applied, among which are Cost-Benefit Testing (CBT), a Regulatory Impact Analysis (RIA) or a Good Regulation Testing (GRT). When the quality of the new system was determined, the Bureau used GRT as a starting point, whilst the important aspects and findings of the CBT and RIA were also observed.

This paragraph deals with the main points of the methodology, the objectives and content of the GRT that was applied, along with its conclusions. The GRT was executed in three phases.

During the first phase the criteria to assess the quality of the (chosen) policy option are determined. During the second phase the possible policy options, the advantages and disadvantages thereof and the preliminary choice were analyzed.

In the third and final phase an evaluation was made (based on the inventory of advantages and disadvantages) of the provisionally chosen policy option through the criteria determined in the first phase and a conclusion was drawn about the quality of the regulation or intended policy option.

4.5.2 The criteria

In order to assess a regulatory system you need clear criteria. In the scope of the GRT a regulatory system is subjected to five important tests, namely:

- a. is the system democratically legitimate?
- b. is there an effective system of accountability?
- c. are the procedures transparent (honest, accessible and open)?
- d. Does the supervisor have the expertise required to perform the tasks? and
- e. is the regulatory system (economically) efficient?

² See for instance Baldwin, R. and M. Cave, *Understanding Regulation*, Theory, Strategy and Practice (Oxford University Press, 1999) and R. Baldwin, *Rules and Government* (Oxford University Press, 1995).



The goal of the criteria is to assess whether the policy option that was chosen may be regarded as good regulation.

4.5.3 The various policy options and the preferred option (the chosen system)

In the second phase of the GRT the possible policy options., the advantages and disadvantages thereof and the preliminary choice must be analyzed. In this respect we distinguish three policy options, being:

- a. to continue the current situation of dominance (by Aqualectra);
- b. to introduce market orientation and strict regulating (managed competition) and
- c. to introduce market orientation in production and delivery combined with limited regulation insofar as the market does not operate to maximum capacity (open market).

In all three cases the basic principle is a monopoly of the network company.

The following table shows the three options mentioned above with a short description of the advantages and disadvantages based on a number of criteria.



Table 2: Advantages and disadvantages of policy options

	MAINTAINING CURRENT SITUATION OPTION 1	MANAGED COMPETITION OPTION 2	OPEN MARKET OPTION 3
Description	<ul style="list-style-type: none">• Multiple producers without concessions and a dominant Aqualecra• Delivery part of distribution• No external regulation• Limited development of generation of sustainable energy supply	<ul style="list-style-type: none">• Multiple producers under concession regime• Delivery open market in second phase after evaluation• Strict regulation• Generation of sustainable energy is on list of priorities• Consumer interests are safeguarded	<ul style="list-style-type: none">• Production completely free, including pricing• Delivery open market linked to trade market• Limited regulation• Open market generation of sustainable energy
Advantages	<ul style="list-style-type: none">• Familiarity with existing possibilities and limitations	<ul style="list-style-type: none">• Maximum warranty for stimulation of sustainable generation• Downward tariff impact through market orientation and regulation• Improved availability of capacity• Improved warranty interests end users through supervision	<ul style="list-style-type: none">• Customers have full choice• Prices drop fastest, in theory• Technological progress can accelerate
Disadvantages	<ul style="list-style-type: none">• Dominant party determines policy and weighing of interests• Customers do not have choice• High risk, rates too high through absence of market orientation• Availability problem may last for prolonged period of time	<ul style="list-style-type: none">• Customers have limited choice	<ul style="list-style-type: none">• Higher risk regarding sustainability of financing and business operations• More complex system

From the analyses executed in the scope of the GRT, of which the importance is indicated in the table above it appears that option 2 turns out to be the best as yet. On the one hand it conforms with the introduction of more market orientation to put pressure on the prices (of production), on the other hand external regulation will ensure that sustainable energy generation is stimulated sufficiently and that any small-scaled effects are addressed.

Choosing option 1 will mean a *status quo* and a considerable chance that the existing obstacles will remain in place and implementing option 3 is ridden with too many risks, while the



advantages can also be realized with option 2. The fact is that under the circumstances, option 2 in terms of quality of the solution is superior to option 1.

Furthermore this policy option is coherent with the direction the position paper³ of Caribbean Electric Utility Services Corporation (CARILEC) is aiming towards.

In the final phase of the GRT the provisionally chosen policy option was evaluated and a conclusion was drawn about the quality of the regulation. Please turn to paragraphs 2.3.4 to 2.3.9 for a brief outline of the results.

4.5.4 Legitimacy of the chosen system

The question is whether the system is democratically legitimate. This question implies that if there is political (parliamentary) support for the regulation system, this will be legitimate. In view of the existing public outcry regarding sharp increase of the rates and especially the availability problem, we can state that there is a mandate from the people for the government to change the current system in order to lower the rates and increase availability.

The fact is that the Executive Council of the Island Territory Curaçao at the time picked up on this mandate and on 18 December 2009 it assigned the Bureau to develop a new policy and supervisory framework, among other things. Respective to the fact that the Government of Curaçao continues on the path already laid out, it is to be expected that the democratic legitimacy of the proposal is not at stake.

4.5.5. Accountability

The question is whether there is an effective system of accountability within the framework of the intended regulation system. As it was presented in the chapter regarding òIndependenceö the supervisor operates Ministerial responsibility. Since the Minister has to answer to Parliament regarding the policy, the supervisor ultimately has to answer to a democratically chosen institution.

Apart from this the resolutions of the administrative body and the actions of the supervisor fall within the jurisdiction of the administrative court, based on the National Ordinance on Administrative Justice. This way, the system of accountability may be labelled as potentially effective, first toward the Minister and subsequently toward Parliament and the Court.

³ CARILEC, Position Paper on Regulation and Renewable Energy, March 2010



4.5.6 Due process

Are the procedures transparent? In principle the actions of the supervisor are assessed within the existing legal policy and supervisory framework. The legislation in force and the procedures incorporated within, including the policy and supervisory framework are open and accessible to everyone and therefore they are transparent. Fair application of the legislation in force by the supervisor is warranted by the Minister (as an authority of objection) or the court (as an authority of appeal) via the administrative legislation (in this case the National Ordinance on Administrative Justice).

Due process appears to be enshrined fairly well through the current legislation and regulations and substantiated through practice.

4.5.7 Expertise

The question must be raised as to whether the envisaged supervisor has the necessary expertise to perform the tasks. The Government's intention is to appoint the Bureau as external supervisor to the implementation of the policy and supervisory framework. The Bureau has years of experience and expertise in the field of infrastructure regulation and in enhancing market orientation in the utility market.

As far as the methods applied there are concerned for rates regulation and achieving efficiency and transparency, there are no essential differences between telecommunication and electrics in that respect. In both cases the current concepts are more or less equal and the Bureau has the required expertise for this.

4.5.8 Efficiency

The final question in the scope of the GRT is whether the regulation system is (economically) efficient, with cost effectiveness as the most important issue here. Is it possible to realize the objectives of the supervision against reasonable costs? In comparing the rates in Curaçao to the reference countries in the region (Aruba and Barbados) it has already been determined that the rates of the latter are 30% lower than in Curaçao and respective to the financial parameters of Aqualectra this amounts to a potential NAF. 100 million in excessively charged costs, compared to the reference countries. The costs of supervision are a mere fraction of the possible savings that may be realized with the new system for that matter.

Apart from this, the new policy and supervisory framework imply that the incumbent, but also the new parties have incentives to keep the rates as low as possible, which will provide social



profit for the whole population. The transition from energy generation with oil to energy generation with natural gas and the development of more capacity for sustainable energy will further drop the costs in the interest of the consumers and the business world. Also, the availability of the electricity supply shall increase eventually and fewer breakdowns will occur, because of the supervision and the technical and quality demands that come with it. This will have positive consequences for the business world and the economy, but also for the life expectancy of electrical equipment in households.

The risks of implementation of the new system can reasonably be covered via the admission system (admission only in case of under capacity and case by case assessment of granting concessions), the introduction of external supervision and further regulation, a lasting coordinating role for the network company, regular evaluation and a policy survey right before the end of the implementation period. This way adjustments can be made in time, should any problems occur during implementation.

4.5.9 Conclusions

Respective to the abovementioned and in view of the presence of the obstacles and limitations as referred to in Chapter 3, it may be concluded that the alternative policy options (1 and 3) would not realize superior social and economic results in due course, compared to the provisionally chosen policy option, which is option 2. This option may therefore be qualified as the most efficient solution. Furthermore the regulation system and market model of choice achieve high scores when it comes to democratic legitimacy, accountability, transparency and expertise. Basically, the intended system may therefore be labelled as “good regulation”.



V. POLICY FRAMEWORK I: TECHNICAL REGULATION: TECHNICAL- AND QUALITY REQUIREMENTS FOR THE LINKS IN THE PROVISION OF ELECTRICITY

5.1. INTRODUCTION

The regulation of the electricity market is, with the exception of specific accents resulting from the difference between the types of products and services, relative to set up, not significantly different from other utility sectors with a heavy infrastructure or a transportation and distribution network, such as water, gas and telecommunication. Consequently also in the regulation of electricity there is a branch-related sub-division in legal supervision, economic supervision and technical supervision. These three types of supervision are mostly under the competence of an (independent) supervisory body or a ministerial department.

For the legal- and economic supervision reference is further made to respectively the Chapters VII and VIII. This chapter under consideration deals with the elements of the policy framework for the technical and quality-related supervision.

For the physical operation (for commercial purposes) exploitation or the running of an infrastructure or a network there are (technical) requirements. The *technical supervision* is concentrated on the technical and quality-related requirements, inclusive of the appurtenant standards, in connection with the three distinctive links in the electricity chain, (in this case production, transportation, and supply). The technical supervision therefore is the basis for realizing the objectives of *a reliable and guaranteed provision of service*, (“*security of supply*”), *sustainable energy supply and conservation of energy*.

5.2. TECHNICAL REQUIREMENTS FOR GENERATING ELECTRICITY

5.2.1. Introduction

An important factor for realizing the international climatic objectives is reducing the production of energy with the aid of fossil fuels. In connection therewith there is a worldwide growth discernable ever since the nineties in the search for and application of all possible ways of producing sustainable energy.



This development is on the one hand driven by the necessity to protect the environment (i.c. reducing greenhouse gases and the effects thereof) and, on the other hand by the prognosis of the dwindling availability of fossil fuels and the attendant increase of the fuel prices. The production of sustainable energy therefore experiences a technological revolution so to speak, by which various technologies⁸ are simultaneously developed, with varying speed and results.

With reference to the above, from an international perspective the energy legislation and therewith the regulation of the energy market has become strongly oriented to stimulating the production of sustainable energy during the past years. Consequently the simple *centralized production model* with a monopolistic national energy producer is becoming an exception. The *de-centralized production model*, whereby more than one producer of (sustainable and non-sustainable) energy are operational in the production link, has gradually become the new rule. Electricity in the decentralized production model is being produced closer to the end consumer and sometimes even by the end consumer himself by means of an increasing number of production methods.

However, through experience it has become apparent that traditional energy producers are originally driven to a great extent by gaining return on investments and therefore they will not from their own initiative revert easily to sustainability. Therefore the new legislation, and in connection therewith regulation based on the international experiences, is an absolute condition to make the production of electricity sustainable in nature and to stimulate innovation relative thereto.

5.2.2. Inter-connection

In addition to improving the sustainability of the electricity production, internationally the augmentation of the inter-connection capacity between networks or countries, also has great priority. Primarily for larger countries and countries situated on continents inter-connection is advantageous, for example the European Union⁹ and the United States of America.

On the one hand inter-connection is good for the reliability of the transportation and distribution network, for economically operating the production units to an optimum, and for limiting the reserve capacity required. On the other hand inter-connection is a condition for a properly functioning trade system for electricity producers, whereby efficient market forces based on liquidity are created.

⁸ See for an overview of technologies: http://en.wikipedia.org/wiki/Renewable_energy

⁹ See Decree no. 1364/2006/EC of the European Parliament and the Council dated September 6th 2006 purporting to the introduction of guidelines for trans-European networks in the energy sector.



Electricity producers are able to trade and physically supply electricity also in other purchase markets (apart from the home-market) through such a connected system. There exists no interconnection between Curaçao and the other islands or countries or the mainland of South-America and such are neither to be expected in the near future.

5.2.3. Requirements for the future production mix of electricity producers

In view of the fact that inter-connection for the time being is not envisioned for the provision of electricity in Curaçao, the country is therefore dependent on its own production of electricity. Apart from that, due to its limited size, Curaçao has to maintain a relatively high reserve capacity (of approximately 30% to 40%) in order to generate sufficient reliability of supply¹⁰. This implies that with a daily peak of approximately 135MVA (in 2010) the available capacity should be an ample 180MW. In view of the predicted total growth, the existent capacity must be increased in 2020 to a minimum of 260 to 280MVA for then instituted power.

However, in Chapter III it was already concluded that the total available production capacity in the year 2010 is insufficient to be able to structurally meet the daily peak need of approximately 135 MVA. Taking into account necessary replacements in the present production apparatus, all this implies that in the coming years substantial investments for replacement and expansion will be necessary to attain the targets for realizing the future production mix (in 2020).

In view of the above, the technical regulation in the coming years will have to see to, among other things, the implementation of the technical requirements stated below respective to the organization and the functioning of the future production mix, which is managed by the electricity producers who have a concession from the government..

Investments in the growth of the production apparatus

In the first place, as we were able to ascertain hereinbefore, the production capacity will have to grow drastically in order to be able to eliminate the present shortfall in supply and to enable the accommodation of the expected growth in the coming years. Herewith the component of sustainable energy will have to be maximized in accordance with the energy policy. In order to be able to attract investments, conditions must be created for a reasonable return on same. In this respect regulation plays an important role.

¹⁰There does not exist a specific standard for the reserve capacity (reserve margins), because to a great extent this depends on the local circumstances. For example in the U.S. electricity producers must maintain a reserve margin of 15-20% for each MW (load) to be able to keep a power failure, if any, (Loss of Load Probabilty or LOLP) below the standard (of 1 day in 10 years or 2,4 hours per year).



Applying the N-2 principle

The point of departure in composing the future production mix is the (N-2)-principle. This implies that the two largest production units in the entire production farm (fluctuating sustainable energy sources not counted in) might fail simultaneously without the remaining capacity falling short of producing sufficient power to meet the demand. The network company herewith plays a crucial role as being responsible for monitoring the unbalance (i.e. the deviation between demand and supply) within the net.

Designation of functions in the production-units

For each production unit forming part of the production mix, it must be clearly indicated which *function* it has in the total production capacity. Herewith we primarily distinguish the “*base-load*” function (for the continuous need) and the “*peak-load*” function (for absorbing the daily peaks). In the event of much fluctuating sustainable production, a substitute- or *regulating* power is also necessary. In addition, a quantity of *reserve capacity* is necessary in order to have sufficient capacity available in case of disruptions or of maintenance, to be able to meet the demand.

Disconnecting the electricity supply to the refinery from the provision to the remainder of the island

As far as the production mix is concerned another important point of departure according to the energy policy mentioned in Chapter I, is the desirability to separate the electricity supply to the Isla from the supply to the island with a view to transparency in the energy system and the security of supply for the island. In view thereof the future production mix must no longer depend on the performance of the BOO-plant as producer of electricity for the ISLA.

Maximum use of gas and sustainable energy

The energy policy of Curaçao mentioned in Chapter I, also has for an explicit point of departure that there must be a provision of energy which utilizes gas as much as possible, as well as the sustainable energy sources which the island itself has available (i.c. sun, and wind). Therefore regulation must be achieved which aims at securing a maximum portion of gas and sustainability in the production mix.



As stated hereinbefore new legislation and, in connection therewith regulation (and also financial incentives) are an absolute must to stimulate sustainable electricity production and innovation respective thereto. For the policy to be conducted relative to the desired production mix of all producers, including the *incumbent*, reference is further made to paragraph 7.5.7.

For that matter it is a widely known fact that sustainable energy sources do not always render a stable constant quantity of electricity (because, for instance, sunrays and wind, contrary to fossil fuels which may be purchased, are not available *on command*). The total production of electricity must, however, always meet the fluctuating demand, otherwise a (whether or not localized) *black-out* will occur. Therefore a balance must be found between demand and supply of sustainable energy. If, for instance, large scale production of wind energy should decline by a drop in wind force, an unbalance might come into being with potentially dire consequences for the end consumers or the community. Therefore there must be substitute or regulating power available for the fluctuating sustainable energy production. This may be accomplished by driving up the operational units, but also by starting production units especially intended for this purpose (see above *designation of functions of production-units*).

Through the technical requirements stated above respective to (the organization of the functioning of) the future production mix, it must be guaranteed to the extent possible, that sufficient electricity (against acceptable rates and of acceptable quality) will be produced to be able to meet the effective demand in the short and the long term.

The technical regulation of electricity production is therefore in the first place oriented to securing the availability of sufficient production capacity for safeguarding the security of supply. Secondly the regulation is oriented to maximizing the factor gas and sustainability in the production mix.

Unbalance

The network company determines on a daily basis, as well as for the long term, which production units supply which capacity. With a view to that, the network company must at all times have an overview of the available production potential, inclusive of the reserves of all the electricity producers.

In this framework all the electricity producers must comply with the rules stipulated to minimize the unbalance in the net. Thus they must submit regular prognoses to the network company of the production capacity to be rendered, in the short term as well as the long term.



Particularly for the fluctuating production units, such as wind turbines, prognoses are very important. Planned maintenance must also be timely notified to the network company.

Finally rules must be conceived in connection with the solution of large scale disruptions, since these may only be efficiently solved through co-operation between producers and the network company (for instance by immediately switching on additional power from another production unit).

Safety

Safety is an important matter within the work sphere of the electricity provision, for the continuity of the service, as well as for the health of persons. As far as the latter is concerned, a concessionholder should apply the necessary safety procedures for persons who work with electrical installations or in the environment thereof, based on international standards such as the NEN 1010, the NEN-EN 50110-1 and the supplements of same NEN 3140/3840. It stands to reason that the operative national legislation in connection with safety is applicable to all the mentioned concessionholders.

In connection with the above the *producers, as well as the network company* must have a safety plan. The safety plan has to be submitted to the supervisor to be assessed on its merits. The safety plan should, at any rate, give detailed instructions as to the applicability of the above-mentioned standards, the procedures to be followed, the necessary certification of the staff and the operational reporting on incidents and the follow-up attendant to same.

Finally the concessionholders are bound to take the necessary measures, in view of the importance of the electricity provision, for the protection of the national safety and security by conceiving, testing and implementing a security plan. Further requirements will be stipulated by the supervisor respective to the security plan. The concessionholder will regularly revise the security plan and will adapt it to relevant developments whenever necessary.

5.2.4. Technical requirements for enterprises with non-sustainable own production

The technical requirements dealt with above are particularly related to the production mix which is managed by electricity producers.

However, as we noted before, companies are good for 60% of the annual energy need. It is therefore not amazing that for companies a reliable energy provision is of crucial interest for their own operational activities.



Through the situation on the electricity market, especially the sharp increase of the tariffs and the problem of availability, many an enterprise with a need of several hundreds of kVA production, have installed an emergency power generator¹¹ in the course of the years. In many cases these generators are used for the primary provision of current without any connection to the network of the electricity company. It has become apparent after an analysis that in these cases considerable quantities of power are involved.

In view of the existing practice, enterprises will in principle formally get the opportunity in the new policy framework to produce non-sustainable electricity for their own use. This may be brought into action as a back-up facility (emergency power generator) in the event that the public electricity provision is disrupted, but also to regularly provide for (part of) their own need.

Through this policy the present practice is being formalized by which the government and the regulator obtain a better view on the existing situation, as a result of which adequate technical and legal regulation may take place. Apart from that, as a consequence of this policy an extra incentive comes into being for the professional producers holding a concession who supply through a network, to increase the reliability of their services and to supply at competitive rates. As you know, companies absorb 60% of the need for energy and with a reliable and cost-efficient supply of electricity they have little cause for putting diesel generators into use. In this way the electricity producer escapes the loss of revenue which would arise whenever companies put diesel generators into use.

As to the concession policy to be conducted regarding the group of enterprises with their own production and with the possibility of reverse supply to the net, reference is made to paragraph 7.5.3.

¹¹An emergency power generator provides emergency current to an electrical network, which is activated as soon as the regular feeding (i.e. the voltage on the net of the electricity company) cuts out.

5.3. TECHNICAL REQUIREMENTS TO THE ELECTRICITY NETWORK

5.3.1. Introduction

As was already described hereinbefore, there is a worldwide trend to achieve sustainable electricity production, whereby technologies exist side-by-side and innovations will follow one another. In this framework gradually the *decentral production model* comes into being, whereby, as stated before, multiple producers of (sustainable and non-sustainable) energy will be active in the chain of production.



Decentralizing the production is primarily an important challenge for the network company. The electricity network will be based in the future on a decentralized production environment, consisting of one or more large electricity plants (only classical or classical and sustainable) in combination with medium-size and small local sustainable production units, based on the various types of technologies (wind, sun, water, biomass, etc.).

5.3.2. Technical requirements for the network company

In such a decentralized production environment the network company is the *game controller* and is responsible for an adequate coupling of the demand for (end consumers) and the supply of (producers) electricity and for an uninterrupted delivery of electricity to the corporate and household end consumers via the net.

In view of the specific circumstances of Curaçao multiple network companies within one service area are not desirable, as such will lead to complex inter-connection agreements and co-ordination problems and therewith to an increase in the cost. Add to this the additional costs for duplicate networks. It is not to be assumed that better market forces will compensate for these disadvantages. As a result of this the network company will retain its natural monopoly.

Due to the monopolistic nature of the network company (in other words, it has exclusivity of the network in the entire service area) it will generally be subject to more stringent regulation. A more stringent legislation is necessary for the protection of the interests of the end consumers. The regulation referred to will be primarily concentrated on transparency and efficiency. When sufficient sustainable energy, whether or not through reverse supply, is available, an obligation may even be imposed on the network company (if the supply function has not been liberalized) to purchase a certain percentage of sustainable energy in order to stimulate the further growth of sustainability.

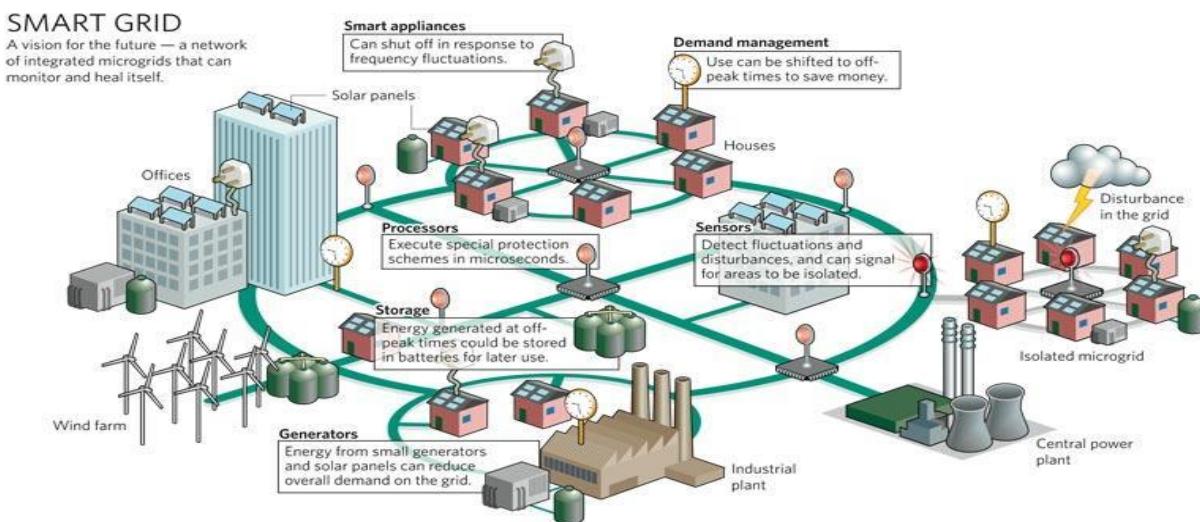


5.3.3. Decentralized production model

The classical electricity net is characterized by one-way traffic, whereby the electricity is centrally produced in an electricity plant (sometimes called a “power plant”). The voltage¹² is subsequently raised to a higher level (high-voltage) via transformers in order to limit the losses. Via the transportation network the electricity is then conducted to the service area. Within a service area the voltage is regulated back step-by-step via medium-voltage to low-voltage and is then supplied to the end consumers via the distribution network. This is the centralized production model.

With the development and emergence of more decentralized sustainable energy production, the transportation- and distribution network as a whole will become fundamentally different in scope. A (somewhat) futuristic example is given in the picture below.

Figure 2. Example of a decentralized production model



The picture shows that in a decentralized production model (on the part of the producers) many more decentralized points will arise in the network where electricity is produced. Large-scale wind energy (wind farm) displays a variable capacity depending on the direction and force of the wind. Solar panels of private households and companies will have local, widely spread out couplings to the net. The larger and smaller classical plants (“central power plants”, respectively “generators”) will see to availability of electricity on a total level.

¹²In Curaçao the high-voltage is 66KV, the medium-voltage is 30KV and 12KV and the low-voltage 127V/220V.



Also on the part of the consumers the patterns are going to change as a consequence of the decentralized production model. With sustainable electricity production, companies and private persons will partly provide for their own need and they will only need electricity from the net on specific moments or periods and then also a variable capacity. By placing smart meters at each connection, there is a continuous outlook in the energy currents. Isolated micro grids may come into being on street level or in town quarters or parks, which will be partly or wholly self-sufficient in a sustainable manner.

5.3.4. “Smart grid”

As a result of the above-mentioned, in case of a development from a classic centralized electricity production system to a more decentralized one, the energy supply will no longer only run unilaterally centralized from large power plants to the energy consumers. There will be increasingly more traffic of energy, with the (energy) currents running in various directions through so-called knots in the network.

In order to facilitate the operation of the decentralized production system a so-called “*smart grid*” is required. This is an electricity network that, with the support of advanced ICT-systems, monitors the energy currents on all required levels for directing and regulating production and consumption of electricity. This way the balance of supply and demand is always automatically warranted. This is a balance which thus might look different from the one before under the classical system, but is also a balance that, on a local level, may vary strongly in time and may show two-way traffic rather than the classic one-way.

Technical requirements for the smart grid

The layout of the smart grid requires a considerable financial investment, especially on the technical organizational level. In this case the emphasis lies more with monitoring the technical processes and ICT systems in order to manage the network intelligently, rather than was the case with the classical network technique. This is why the electricity network should first make functionalities and concepts suitable for the decentralized sustainable production via smart grid

5.3.5 Linking electricity producers to the transport network

The network company provides producers with access to the transport network based on non-discriminatory, objective and transparent conditions. For the producers the right of access to the transport network of the network company is formally stipulated in its concession, but further rules will be laid down regarding the linking point for the feed.



For the other electricity producers (for their own use with license or exemption) where return delivery is relevant, the link to the network will automatically be realized by the network company within a reasonable term. In these cases access may temporarily be limited as far as capacity is concerned, or else be postponed, in the event that there is insufficient transportation capacity available at that location.

The network company will then be required to make the network suitable it to enable the provision of this transportation capacity within a reasonable term. In such cases further conditions will also be laid down regarding the linking point for the feed.

5.3.6. Capacity plan

The network company must have a yet to be determined capacity at its disposal, including the required reserves for transport and distribution, of electricity in order to be able to provide for the total need for electricity in the most effective manner.

In order to fulfill this task, a capacity plan needs to be drawn up regularly, which proves that the network company has sufficient capacity at its disposal to provide for the total need.

With regard to the capacity plan further rules will be laid down, which may differ per network segment (66kV, 30kV, 12kV or low-voltage) and in any case concern the network design, the capacity information that is to be included and the manner of estimating.

The basic (n-1) principle will be at least at a level of 66kV and 30kV at which in case of an individual breakdown, there will be no interruption of transportation. Automatic rerouting will have to take place according to the redundancy present in the network. For the 12kV network segment the principle will be the use of a ring structure with the minimal option to switch over manually in case of a network breakdown.

The network company will depend both on the side of production and on the side of the demand to draw up a sound capacity plan. This is why on the larger electricity producers, as well as on the larger (corporate) consumers the obligation will be imposed to periodically provide the network company with the necessary data to enable it to draw up the capacity plan.

In this regard the electricity producers with a production capacity in excess of a level to be determined later and also according to regulations to be laid down later, are obliged to periodically disclose their production plans to the network company. Also, consumers of electricity with a capacity made available to them under contract, in excess of a level to be pre-



determined, will periodically make the necessary data available to the network company. These data will at least contain the maximum capacity to be purchased and the consumption pattern.

5.3.7. Prescriptions regarding networks

At the moment the National Decree on regulations regarding electrical cabling (P.B. 1965, nr.140) is the regulatory framework in force where network regulations are concerned. This National Decree is for the implementation of the articles 1 sub 4 and 11 sub 1 of the National Ordinance on Electricity Concessions. The National Decree stipulates the necessary rules for the use of underground cables and surface cables and electricity towers connected to the network.

This National Decree, because of its age, needs to be amended where necessary, with due observance of the current international norms in this regard. Important here are good access to the cables, safety, prevention of undue influence and the best possible use of the available space.

5.3.8. Excavation rights and regulations for earth movers

In order to have access to the market it is necessary for the electricity network to be placed over or under public or private property. The point of departure here is the principle of mandatory tolerance for the installation of cables.

The network company is obliged to adhere to an earth movers regulation, whereby parties working public soil may at all times request information regarding the location of cables, in order to minimize the chances of damage or even prevent such.

5.3.9. Making the network accessible to third parties

A standard part of the concession for the network company where the holder manages or operates a network, is that third parties may have equal access to the network for activities other than the distribution of electricity. In this case one may think of co-location on electricity towers and optical fiber network and PLC¹³- applications for telecommunication services.

5.4. TECHNICAL REQUIREMENTS FOR THE SUPPLY OF ELECTRICITY

Currently, the supply of electricity in Curaçao is (partly) integrated with the distribution activities of Aqualectra Distribution. The service offices of the company serve to apply for connections, as well as for payments for electricity supply. In fact, the complete Aqualectra Distribution front-office activity is a combination of duties that belong with the electricity distributor and duties that belong to suppliers' activities.



In the event that the supply function is technically liberalized, the electricity supplier will become the entity who will take care of purchasing of electricity from the producer(s) and subsequently sells same to private and business end consumers. With this the supplier earns a margin by selling the electricity against a higher rate than the one it is purchased for. The key here is the favorable bulk purchase in combination with an efficient and customer-oriented service department.

In case multiple suppliers are allowed access to the electricity market, the suppliers' activities, in order to become eligible for authorization (and at a later stage for a license) will at least need to cover the following responsibilities:

- the purchase of electricity with electricity producers (against favorable prices);
- the sale of electricity to end consumers via supply contracts;
- the billing and collection of supplied electricity based on meter readings and
- the provision of services to consumers (regarding sale, supply, billing, collecting and dealing with complaints)

5.5. QUALITY REGULATION

5.5.1. Introduction

Apart from the technical requirements and requirements regarding production, network and supply, the technical regulation also consists of a quality regulation for electricity delivered to the end consumers. In principle the quality of electricity is two-fold.

On the one hand the quality is determined by the technical quality of the supplied power and on the other hand by the availability of the product (in this case the time during which the product is available for the end consumers). Further requirements will be stipulated in connection with both elements of the quality of electricity supply, regarding the manner of registration, as well as the quality standards applied and the reporting on same. Besides this, the monitoring system also determines the quality of the electricity.

The policy framework for regulating the quality which is to be delivered to the end consumers thus consists of: requirements for the technical quality, requirements for the availability and requirements of the monitoring system.

5.5.2. Requirements from the technical quality of electricity

The distribution company is obliged to supply power to the connection point of the consumer with a quality level which at least is in compliance with the European quality standard ñNEN-EN



50160 (Power characteristics in public electricity networks). In this respect quality norms are at least stipulated for the field of frequency variations, slow and rapid power variations, asymmetry and power harmonics.

5.5.3. Requirements for the availability of electricity

Besides the norms for technical quality, norms are also set regarding brief and long-lasting power failures. The requirements set are primarily for the benefit of end consumers. Failure to comply with the norm may lead to damage to (peripheral) equipment connected to the distribution network. The administrative authority will determine a procedure for claim settlement after consultation with the network company.

In view of the above-mentioned, the network company will make every effort, reasonably within its powers, to prevent failure to deliver electricity, or in case a breakdown occurs, to repair such as soon as possible. In doing so, per network segment (66kV, 30kV, 12kV or low-voltage) the norms for elimination of interference and recovery time will apply.

From the viewpoint of the end consumer there will be maximum times determined for elimination of disruptions. If these times cannot be met this will give cause for compensation to the end consumers. This works as an incentive for the network company to minimize supply interruptions.

In any case norms will be set regarding the total availability of the network through the Average Service Availability Index (ASAI). Here the total amount of customer hours during which electricity was supplied is measured against the total number of customer hours. Over the past years targets in the range of 85-95% were used. Although there are no figures available of what was actually realized, it appears that a lot needs to be improved considering the frequent outages on the island. A state-of-art network would operate with an ASAI of over 99%, which currently is not yet the case.

Finally, with regard to planned interruptions of supply for maintenance purposes or other operations there will be further requirements applicable to the network.

5.5.4. Targets

The network company will be required to perform a baseline measurement within six months after the concession has been granted in order to determine the exact targets for the norms of both the technical quality as well as the availability of electricity. Based on this, the targets for the various norms will be determined after consultation with the network company.



5.5.5. Requirements of the monitoring system for the quality of the electricity

The network company is obliged to monitor the quality of the supplied power continuously (24/7) via a quality monitoring system. Quality monitoring should be effected at all network levels with the option to measure individual connections. The quality monitoring system will need to be approved by the supervising authority. The network company will need to regularly report to the supervising authority about the measurements on quality and availability of electricity. The supervising authority in turn will publish the results so as to inform all consumers about the quality provided in relation to the obligations. The network company should include structural quality solutions in its capacity plan in order to solve them as soon as possible.



VI. POLICY FRAMEWORK II: POLICY STIMULATION AND REGULATING SUSTAINABLE ENERGY

6.1. INTRODUCTION

The policy towards stimulation and regulation of sustainable energy is to a large extent part of the technical supervision. In this scope we will first discuss the international and national developments regarding sustainable energy.

Subsequently we will proceed to the technical requirements regarding the small-scale, as well as the large-scale production of sustainable energy and pay attention to some special subjects in this regard, such as grid connection, reverse supply and net metering. Finally we will briefly submit proposals regarding some measures for further stimulation of the investment in and production of sustainable energy.

6.2. INTERNATIONAL DEVELOPMENTS SUSTAINABLE ENERGY

In the previous chapter the rapid worldwide growth of sustainable energy was already pointed out, which is due to the need to protect the environment (in this case the reduction of greenhouse gases and its effects) and the decreasing availability and appurtenant price increase of fossil fuels. The production of sustainable energy is going through a kind of technical revolution, as it were, whereby several new technologies are being developed with varying success.

As a result of this international development, the classical centralized production model is gradually being replaced by a decentralized production system, where multiple producers of (sustainable and non-sustainable) energy are active in the production link of the electricity chain. Besides this, in order to regulate all energy traffic on the network, there is an increased use of so-called smart grids: a technically advanced electricity network that measures the flows of energy at all the necessary levels for the management and regulation of the production and consumption of electricity.

6.3. LOCAL DEVELOPMENTS SUSTAINABLE ENERGY

As far as the local situation is concerned, the Aqualectra õPlan 2030õ referred to in paragraph 3.2.1. provides some insight into the technical developments, the necessary investments, possibilities and restrictions for the long-term.

Primarily we may conclude that in the next twenty years there will be an enormous turnaround in



the system of production of electricity. Within this context Aqualectra intends to phase out or replace virtually all existing production facilities. The phasing out of the Mundo Nobo plant is an important factor here, because the majority of the units there are well beyond their life span and these should actually have been replaced already. The BOO plant is currently cited as a stable factor in the plan but its performance in the near future is expected to be unreliable, considering the recent developments regarding operational availability of the plant and the presumably high investments required to secure supply for the coming years.

Based on an analysis of the possibilities regarding new production units which, among other things, included a look into the development of the demand for, the fuel policy of and the feasibility of the various alternative energy sources, a plan was drawn up for the coming years. In connection with this it is projected to produce a minimum of 50MW of wind energy (in any case including renovation and expansion of the wind farms at Tera Kora and Playa Kanoa) and energy from waste by 2030. This corresponds with approximately 20-25% of sustainable energy compared to the total projected production mix for the year 2030.

Meanwhile, in view of the April 2009 report from Clingendael et al., (which was adopted by the Executive Council at the time as the energy policy for Curaçao), a core group for the execution of the energy policy (*Kerngroep Uitvoering Energiebeleid*), also known as Qö started to work out a number of initiatives for the production of sustainable energy, such as bio-diesel and energy from waste. Local sustainable energy and reverse supply on the distribution network of Aqualectra are also included in Qö's program of activities.

6.4. STIMULATION AND REGULATION OF SUSTAINABLE ENERGY PRODUCTION

In conclusion we may state that in this scope sustainable energy is gradually, but surely making its entry into Curaçao, but investors require more (legal and financial) incentives to be able to realize the aims of the energy policy in due course.

Furthermore it may be noted that the basic principle of the policy towards stimulation of the use of sustainable energy sources, which the country itself has at its disposal for the production of electricity, is a long way from the phase of maturity.

In this regard international experience indicates that in principle, classical energy producers do not take the initiative to become sustainable by themselves. Therefore, new legislation together with stimulation and regulation are absolute conditions to further develop sustainable electricity production in order to be able to reach the targets of the energy policy in due course.

The fact is that a sustainable production unit requires a considerable investment, which perhaps may be within the financial reach of some investor(s), but not for the majority of them. This is



why additional measures in the form of financial incentives for investors are necessary in order to stimulate the local sustainable production. The following measures are considered in order to lower the threshold for investors as far as investments in production resources for sustainable electricity are concerned:

- *Abolition of import duties or other levies* on the import of solar panels, windmills and other sustainable energy production resources, including levies on related electronics (such as invertors);
- *the introduction of an investment allowance for sustainable energy*. This is a fiscal measure which allows for the creation of a tax deduction when a party purchases a sustainable energy production resource;
- *the introduction of so-called “green” credits* to enable the purchase of the necessary production resources for sustainable energy against low interest rates or none at all.

Basically these measures are beyond the scope of this policy and supervision framework, because the framework in principle has the regulation of the electricity supply as its primary subject and not so much the implementation of financial incentives for the stimulation of a certain form of production. The Minister of Finance, after having studied the possibilities, will decide on such matters separately.

6.5. LARGE-SCALE SUSTAINABLE PRODUCTION

As was pointed out in paragraph 6.3. the total production capacity of sustainable energy needs to be expanded considerably with an indicative amount of 50MW. The greater part of this amount of sustainable electricity production will be provided by larger production units in the coming years, due to the required investments.

Pursuant to the National Ordinance on Electricity Concessions, large-scale production of electricity is subject to a concession scheme where further conditions may be laid down for the concession. Provided that the balance in the network and with that also the security of supply remains guaranteed, large-scale sustainable production will have preference here. In this context the eligible parties in the market will need to be approached by the government to attain the necessary expansion of capacity.

In the initial stages a concession (with the appurtenant conditions) at any rate will be granted to NuCapital, given the contracts that have already been signed for the replacement of the wind farms at Playa Kanoa and Tera Kora. The Aqualectra network company will then be obliged to



completely feed this sustainably produced electricity. Once the two wind farms are operational, the share of sustainable production on Curaçao will amount to approximately 25% of the total energy consumption.

6.6. SMALL-SCALE SUSTAINABLE PRODUCTION

An important part of the policy and supervision framework respective to the production of electricity is the introduction of a new regime for small-scale sustainable energy production for personal use. The aim here is to promote (clean) sustainable energy, as well as to introduce market forces in the production of electricity with a strong distinction between household and corporate applications. These two market segments are different as far as potential size of production is concerned, but also with respect to the conditions that have to be set to guide local production to the proper channels.

6.6.1. Small-scale sustainable production

As long as there is no substantial reverse supply, for private individuals and companies their production of sustainable energy that is mainly for private consumption, will be fully exempted from the concession obligation, in combination with the right to connect to the distribution network. At present, the main sustainability sources are:

- a. solar PV installations (solar panels) and
- b. wind turbines (urban windmillsö).

Re. a. Sustainable electricity production with solar panels

The sun provides the earth not only with heat but also with electric current, namely through PV¹⁴ solar panels (which are mostly installed on the roof of a building and/or residence) every household is able to produce its own electricity. So with the help of solar panels, through solar cells, energy from the sun may be converted into electrical energy. An inverter turns this electrical energy into alternating current, which the end consumer immediately uses when turning on a lamp or switching on the air conditioner. If the end consumer is also connected to the distribution network he may reverse the excess supply of electricity back to the electricity network. The electricity meter will then run in reverse and there will be a setoff with the consumption of electricity from the public network.

Given the nature of the installation (on the roof of a building or residence), a solar PV installation in most cases will not require a license under the Nuisance Act.

Re. b. Sustainable electricity production with Wind turbines



Electrical current can also be generated with special windmills called wind turbines. Wind turbine is the name used for modern (i.e. advanced) windmills. These are mostly used to generate (green) current out of wind energy through a generator. The turbines are more often set up in large farms¹⁴.

To generate the current from wind energy, the wind must have a certain measure of force. In case of wind energy if the end consumer is also connected to the distribution network, he will be able to reverse the supply of excess electricity back to the electricity network.

¹⁴In English photovoltaic (PV) solar panels

The electricity meter will then run in reverse and there will be a setoff with the consumption of electricity from the public network.

In fact, in the built-up area only smaller wind turbines are an option, but from a commercial point of view these are less interesting. In the outer areas (such as the coastal areas and the backlands) it is possible to set up larger wind turbines.

In general, small-scale wind turbines will have an increasing height and diameter depending on their capacity. Given the aspects of environment (such as noise and visibility) it is necessary to carefully consider where to install wind turbines. This is why more often a license under the Nuisance Act is required before wind turbines can be put into operation.

Exemption from the concession obligation for small-scale private production

The electricity production by private individuals and companies may be effected without a concession if, among other things, the following conditions are complied with (also see 7.5.3.):

- the generated electricity is primarily for private use;
- the reverse supply amounts to less than 1MW;

Apart from the required building and nuisance act licenses, all installations for small-scale electricity production for private use must be inspected to warrant their safety. The inspections will be standardized based on international norms and standards in this field¹⁵. The basic principle here is that a system for sustainable energy production requires installation by a certified installer. A certification system will be set up for that purpose. Besides this the system components will also have to comply with the international standards in this field as referred to earlier.



The basic data of all approved installations need to be passed on to the network company. This way the network company will be able to keep track of the whole of the decentralized production capacity and thus be able to determine the right dimensions.

The network company will be consulted in advance about the grid connection in connection with the amount of load placed on the network as there may be a substantial reverse supply to the network, which gives cause to an obligatory concession. Furthermore the network company may indicate that a temporary transportation restriction is in force. In that case the network will have to be made suitable to facilitate the grid connection at a reasonable term.

¹⁵The basis for this will be the IEEE-1547 and UL 1741 standard

6.6.2. Safety aspects in case of small-scale sustainable production

An important element of solar-PV installations and wind turbines is safety. A series of connected solar panels may have a DC-voltage of hundreds of volts. An inverter will transform the DC-voltage into alternating voltage which corresponds with the regular voltage of the distribution network.

Windmills initially produce ödirtyö alternating voltage, which is first transformed into DC-voltage (most often inside the mill) and after this it is transformed back into öcleanö alternating voltage by way of an inverter.

In both cases, if a grid connection is made there must be an automatic safety device both on the side of the wind turbines or solar panels and on the side of the distribution network. Should anything go wrong with a turbine or a solar panel, these must be shut down immediately.

Should anything go wrong on the side of the distribution network, however, (for instance in case of power failure due to a breakdown), the grid connection must be cut off immediately. The so-called öDCö and öACö safety devices are mostly built-in into the inverter. This is shown in the illustration below.

Figure 3. Basic components connection to the network



Local sustainable production can also be applied on a *stand-alone* basis, which means without the provision from the distribution network. This is possible for instance by using battery systems for storage of electricity. This will require a comparative set of regulations, although such a configuration is far less interesting commercially, due to the costs of the battery system.

6.7. GRID CONNECTION AND REVERSE SUPPLY

Upon determining the conditions to qualify for an exemption (private individuals) or a license (companies) it was stated that the regulations regarding grid connection must be complied with. Regardless of the private production of sustainable energy, in both cases the right to a connection with the distribution network will remain in force because in many cases the local sustainable production (owing to fluctuating electricity production) will not be large enough for complete self-sufficiency.

For instance, for private individuals solar-PV installations provide much electricity during the day, enough to meet the needs, but it is at night that consumption is highest due to the use of air conditioners, just when the production of the solar-PV installations is virtually nil. In such a case, solutions with energy storage, such as with batteries, are too expensive and from an environmental point of view also not appropriate. That is why, in keeping with the international trend, local sustainable production combined with a grid connection will serve as a basic principle of the policy.



This means that at times when more electricity is produced than is required for private use, the excess supply may be reversed back to the network. No significant technical obstacles for this were identified (see paragraph 3.4.1 up to 3.4.3 for this). At other times when production is too low, the network will supply the local system with electricity. In fact the network then assumes the role of batteries and as such it functions as an energy storage device. This is necessary to make local sustainable production technically and financially possible and to prevent more environmentally damaging effects by local storage systems (batteries).

Depending on whether electricity is purchased from or reversed to the network, the electricity meter will run forward or backward respectively, and there will be a setoff between purchase and reverse supply of electricity from the public network. This is called net metering (see paragraph 6.8).

For the grid connection as described above (in this case where connections for small-scale sustainable production are concerned) some standards will have to be determined. There will be a distinction between private individuals and companies here, yet for both there will be standard contracts which will be concluded with the network company¹⁶

In these grid connection and reverse supply contracts the applicable legal, technical, procedural and financial conditions are laid down, which are operative in case of a grid connection with reverse supply. The standard contracts must be approved in advance by the supervising authority.

6.8. NETMETERING

Balancing with identical rate

From an operational and a financial point of view the net metering principle serves as a basis in case the local (sustainable) production is combined with grid connection. This means that the network company is obliged (within reason) to purchase the reverse supply of sustainable electricity and that this will be set off against supplied electricity from a certain consumption period, thus a form of balancing is in effect.

Balancing can be based on the same rate, requiring only the net quantities in kWh (supplied minus reverse supplied kWh) to be measured, in which case a simple reverse meter can be used for the settlement.

¹⁶The standard contracts will be based on the IREC model interconnection procedures 2009.



Balancing with differentiated rates

There is another rate, however, which may be used for the reversed supply of energy. This might be a higher rate than the one that is charged for non-sustainable purchase as an incentive to stimulate sustainable energy production, but it may also be a lower rate.

In case of a differentiated rate, a bi-directional meter with separate kWh reading for supply and reverse supply is required. In this regard the introduction of digital meters (counters) is important, because the so-called bi-directional counters enable readings of reverse supplies from green energy to the network.

The use of differentiated rates does bring about more complex administration for the registration and settlement of amounts due. At the moment there are no digital (smart) meters that enable differentiated rates, so bi-directional readings can only be effected by using two meters: one for the supply and one for the reverse supply.

From a financial and operational point of view the use of two meters is not an option for private individuals and therefore the only choice here is the reverse meter principle for the moment. The use of two meters is an option for companies, however, enabling them to use temporary differentiated rates, which will be an interim phase in anticipation of the introduction of smart meters in the future.

The abovementioned implies that in fact there are no obstacles to prevent the introduction of the reverse supply principle in Curaçao. The limitations resulting from differentiated rates will then also be addressed in an internationally customary manner.



PART III: MAIN FEATURES SUPERVISORY FRAMEWORK ENERGY SUPPLY



VII. SUPERVISORY FRAMEWORK I: LEGAL REGULATION AND PROTECTION OF THE END CONSUMER

7.1. INTRODUCTION

In Part II the segments of the *new policy framework* for the regulation of the energy supply in Curaçao were set out, consisting of the new market system for the electricity sector, the general aims of the policy, the technical regulation of the existing classical (non-sustainable) energy supply and the policy for the stimulation and regulation of sustainable energy production by private individuals and companies.

The new form of market regulation is firmly planted on two pillars, namely the above-mentioned policy framework and a supervisory framework for the legal and economic implementation of the policy framework. In this part we deal with the second pillar of the new form of market regulation, which is the supervisory framework.

In this Chapter (VII) we discuss the legal regulation, including the consumer supervision, while Chapter VIII is about economic supervision and the pursuit of efficient pricing in the electricity market. The final Chapter (IX) deals with the critical success factors for effective implementation of the policy and the supervision framework in the coming years.

7.2. CONCESSION POLICY AND SUPERVISION ON COMPLIANCE

Apart from formal legislation, the most important regulatory measure in the scope of the legal supervision is the concession. *Legal supervision* is mainly about the implementation of the concession policy and the supervision on compliance. The latter means investigating and reporting on the compliance with the law and regulatory measures of concession- holders by an independent supervising authority.

In principle, the concession policy points out which subjects are eligible for a concession and on what grounds. The concession is granted for a specific time period and contains the conditions and requirements laid down by the government, which the holder should comply with for the duration of the concession. Most of the time the legal requirements are superfluously repeated in a concession, or else they are explicitly pointed out, so the concession in itself represents a complete set of regulations. Once a concession has been granted the legal supervision will predominantly concentrate on supervision over the compliance with concession conditions.



Thus, legal supervision shapes the realization of the aim towards an *independent market regulation*. This chapter will first go through the generic aspects of the concession regime and the intended concession policy. Subsequently the specific elements of the concession for electricity producers and the network company will be discussed, as well as the elements of a license, if any, for suppliers if the second phase is implemented. We conclude with the obligations for providers towards concession reporting and compensation.

7.3. CONSUMER SUPERVISION: PROTECTION OF THE INTERESTS OF THE END CONSUMERS

Up to now, the regulation of the electricity supply on Curaçao has virtually completely been focused on controlling the rates. There is hardly any explicit external regulation of the quality of the product or of the service provision and the conditions on which the products and services are delivered to the end consumers.

The above-mentioned aspects have *in fact* been filled in by the existing network company in its very own way throughout the years, among other things, the technical policy conducted by the company, the general terms and conditions and the supply conditions regarding the connection of the end consumers to the network. However, filling this in obviously is primarily done from the company's point of view, while the regulation referred to here is founded on warranting the interests of the public (the public interest approach) and more specifically, the interests of the end consumers as consumers of electrical power.

Since the aim to safeguard the interests of the consumers in large part refers to the quality of the service provision and it especially revolves around securing the rights (consumer rights) of the end consumers, the legal supervision also includes *consumer supervision*. With regard to consumer supervision this chapter deals with a number of important aspects thereof, which are about securing the rights of consumers, namely:

- a. universal service provision;
- b. non-discrimination;
- c. general terms and conditions;
- d. supply conditions and delivery times;
- e. billing and collection;
- f. policy on disconnecting;
- g. changing supplier and
- h. dealing with complaints and disputes.

The discussion of the themes as referred to above and belonging to consumer supervision is integrated with the discussion of other themes of legal supervision.



The concession regime is therefore pre-eminently fit to serve as the starting point for dealing with all themes concerning supervision (in this case, the total supervision framework), which will also be done in this chapter, with the exception, however, of subjects belonging to economic supervision. The main economic subjects, insofar as they are included in the concession (like rates, long-term planning, etc.), will be widely discussed in chapter VIII (economic supervision), along with the economic themes such as efficiency and market orientation .

7.4. GENERIC AND SUBSTANTIVE ASPECTS OF THE CONCESSION REGIME

Point of departure for the regulation of the electricity supply besides the current electricity legislation, as we pointed out earlier, is the concession. The concession is a specific license or authorization granted to an electricity company (producer, distributor, or a combination thereof) by the government in order to provide electrical power to the public. The concession is granted by national decree, by the government of Curaçao, for a certain period of time, following advice obtained from the independent supervising authority.

The following paragraphs will further elaborate on various subjects of the *concession*, including the above-mentioned themes of the consumer supervision. The legal, technical and consumer themes regarding supervision are discussed in a concrete and integrated manner via the instrument of the concession where attention is paid to policy and to the generic subjects laid down in the concession and the substantive themes that are relevant to the current situation as referred to in Part I (analysis).

Important in this regard is that the themes to be discussed hereafter need to be viewed in their mutual correlation in order to gain insight into the nature of the (legal, consumer, technical and economic) supervision and its required contribution towards realizing the objectives of the new policy framework for the electricity supply on Curaçao.

7.5. CONCESSION POLICY TO BE CONDUCTED, BASED ON THE CURRENT NATIONAL ORDINANCE ON ELECTRICITY CONCESSIONS

7.5.1. Qualifying producers

Based on the National Ordinance on Electricity Concessions for brevity's sake a license or assignment (to be referred to hereinafter as: concession) would be required for the party that generates electricity and delivers this to third parties (article 1, sub 1). This means that every producer of (sustainable and non-sustainable) electricity who technically delivers the generated electricity to *third parties* in principle is subject to the legal provisions.

7.5.2. Non-qualifying producers



The concept *delivery to third parties* in any case by definition does not include production for private use, in other words, production for the purpose of final delivery to the own household, the own organization or the own group (in this case corporations or units that are economically linked with each other). So when the own household, organization or group is the end consumer of the generated power, there is no question of supply to third parties.

Furthermore is not to be considered as “*supply to third parties*”, delivery to (and via lines that solely pass through grounds belonging to) the entities referred to in article 1 sub 2 of the national ordinance, namely:

- a. a particular (natural) person;
- b. a legal entity and
- c. multiple persons jointly (in this case a so-called restricted circle).

7.5.3. Producers for private use with reverse supply: “network consumers” versus “net producers”

There remains one group which at first instance and under the current legal provisions does not seem to qualify for regulation. This is the group that does not directly supply to third parties, but after private consumption to a larger or lesser extent, reverses capacity back to the network, which eventually means that this constitutes supply to third parties. Which group should be regulated and which one should not?

If the reverse supply is expected to be *structurally low* this group will particularly produce for private use and, as *net consumers*, be exempted from the mandatory concession for qualifying producers. This may be the case with regular households with standard generators. Net consumers do require a license from the department for environmental development and housing (DROV) or from the environmental department.

In case of *substantial reverse supply* to the network, however, the situation will be different from a situation with “*net consumers*”. We will then have a situation of *net producers*, which in principle are subject to the legal provisions for qualifying producers. However, the reverse supply will need to comply with a numeric criterion that constitutes a serious offer for the supply to third parties. The question will then be (a) in what way this last group qualifies for a concession pursuant to the law and (b) what numeric criterion should be used for *substantial reverse supply* to be identified as a *serious offer*.

Pursuant to article 1 sub 4 of the National Ordinance on Electricity Concessions requirements



may be made by national decree with general operation as to which conditions an application to obtain a concession should comply with. In this regard, the following requirements (to all prospective producers, including the so-called network producers) may be stipulated, among other things:

- “1. *An application for obtaining a concession, insofar as no production moratorium has been promulgated by the government, may only be submitted by a prospective producer who is able to generate a volume of electricity determined by the Minister [responsible for energy affairs] and which volume of electricity whether or not via reverse supply, directly or indirectly, is primarily intended for supply to third parties.*
2. *The minimum volume referred to sub 1 may be dependent on the specific energy sources to be used for the generation of electricity.*
3. *Every prospective producer who, based on the installations to be set up, is expected to structurally reverse back a capacity of at least 1MW to the network, will have to apply for a concession with the Minister.ö*

Herewith the point of departure is explicitly the premise that delivery from a producer, or reverse supply from a önetwork producerö to another producer (among which the incumbent) or else the network company, is similar to the delivery or (further supply intended for) third parties.

In the above-mentioned manner, the önetwork producerö may qualify for a concession, provided that, among other things, the requirement for “*substantial reverse supply*” is complied with, in this case a reverse supply of at least 1MW to the network. This minimum production volume for that matter has been determined as a result of an analysis of the production facilities for private use, currently operational on the island. This production field will not only be charted by the policy, it will also be regulated by the government.

7.5.4. The network company

In terms of the law, the network company is a special case. As the network company is technically and legally unbundled from the production link, on the face of things it may only comply with the second part of the condition for a concession as included in article 1 sub 1 of the National Ordinance on Electricity Concessions, namely “*constructing, installing or using lines for the conduction, conversion and distributionö* of electricity generated for third parties.

Technically, the network company does not qualify for a concession in a legal sense, because in terms of form it does not generate the electricity by itself. However, from a substantive point of view, in this case ösubstance over formö is applicable: Aqualectra Production and Aqualectra



Distribution belongs to one and the same holding company (Integrated Utility Holding N.V.) and the policy for both divisions is determined centrally. In an economic sense (*in substance*) there is indeed a connection between generating electricity and delivering it to third parties, all this as envisioned by the law. Therefore the network company qualifies for a concession, albeit of an exclusive nature.

This exclusive concession for that matter will have conditions attached to it, among which the obligation of the network company to provide all producers that were admitted, with access to the transportation network, based on non-discriminatory, objective and transparent terms. For producers the right to access to the transportation network of the network company will be laid down formally in their concession, including further regulations regarding the linking point for the feed.

The amendment of the National Ordinance on Electricity Concessions will in the new situation enable also the network company to qualify for an independent and exclusive concession, including the status of *supplier of last resort* with appurtenant guidelines.

7.5.5. The independent supplier

When the production, transportation and supply links in the electricity supply are unbundled, the administrative supply of electricity by a market party (in this case an independent supplier) in the new market system, will not be subject to the current legal provision, because in such a case there is no preceding generation of electricity, nor is there any *“constructing, installing or using installations and lines”* for distribution.

In the event that the supply link should be disentangled from the preceding links (i.c. production and transportation) in the second implementing phase of the new market model, the government, in view of the interest of consumer rights, will nevertheless stipulate requirements to the independent producers, through the intermediary of the concessionary involved. This is why the government, in the interest of the rights of the end consumers, will lay down requirements for independent suppliers through the intervention of the pertinent concession-holder. In this regard, pursuant to article 1 sub 4 of the National Ordinance on Electricity Concessions, the government will stipulate requirements to be imposed on the producer or network company by national decree with general operation, purporting to an obligation that the government requirements for supply will be imposed on any independent suppliers they enter into contract with. The producer holding a concession or else the network company, will then be required by its own concession terms, to lay down some minimum requirements for independent suppliers and to guarantee the structural compliance thereof.

The amendment of the National Ordinance on Electricity Concessions will enable independent



suppliers in the new situation to apply for a license, authorization or Certificate of No Objection directly with the independent supervising authority, which will have conditions attached.

7.5.6. Concessions to be granted

Based on the above, the following entities may qualify for a concession:

- a. Aqualecra (the incumbent): for the production company and the exclusive network company, including delivery;
- b. all qualifying producers that solely deliver to Aqualecra (the production company or network company) for the purpose of onward supply by the latter to third parties;
- c. all qualifying producers, who, through the intervention of the network company, supply to third parties by themselves (in other words: at their own risk and expense) and
- d. all qualifying producers with *substantial reverse supply* to the network company (so-called *net producers*).

7.5.7. Policy for desired production mix in connection with the concession policy.

The concession policy is directly connected with the policy regarding the desired production mix (see paragraph 5.2.3.), namely the relation between the use of fossil fuels (in this case crude oil and natural gas) and alternative energy sources when generating electricity. This policy must fit in with the policy for granting concessions.

In this respect the government strives for the granting of concessions with a view to the realization, within three years, of a production mix of approximately 75-25 as far as the relation in terms of percentage is concerned, between the use of fossil fuels, respectively alternative energy sources when generating electricity in the country of Curaçao. Hereby, the preference in the category fossil fuels should go to the production by natural gas as much as possible. In this respect also, all producers of non-sustainable energy, including the incumbent, should invest in installations for production which can operate on natural gas, as well as on crude oil.

7.6. PERMITTED AND UNIVERSAL PROVISION OF SERVICE

In the first place, the concession determines the permitted and non-permitted activities for the concession holder.



7.6.1. Permitted provision of service

Depending on the link, in which the concession-holder will be operating (production, transportation, supply or combinations thereof) the permitted activities may be the following, among other things:

- a. *production* of electricity and constructing, installing or using installations for the generation of electricity;
- b. *transportation* of electricity and constructing, installing or using lines for the conduction, conversion and distribution thereof;
- c. *supply* of electricity to the end consumers;
- d. *transportation and supply* of electricity to the end consumers and constructing, installing or using lines for the conduction, conversion and distribution thereof or
- e. *production, transportation and supply* as referred to under a, b and c.

7.6.2. Universal provision of service

The universal provision of service aims at guaranteeing connection to the electricity network to all customers who request such within reason. The mandatory universal service provision is appurtenant to three essential obligations of the supplier, being:

- a. the obligation to connect all companies and private individuals in Curaçao at their request;
- b. the obligation to supply all companies and private individuals in Curaçao with electrical power at their request and
- c. the obligation to provide a basic supply of a determined minimum quality (security of supply) against an affordable (regulated) price.

7.7. CONCESSION HOLDERS FOR PRODUCTION AND REQUIREMENTS FOR INFRASTRUCTURE



7.7.1. Multiple concessions as point of departure

For the production of electricity with the objective to supply same to third parties, a license will be needed, pursuant to the National Ordinance Electricity Concessions, (in the ordinance named õlicenseõ or õassignmentõ). This act offers the possibility to issue multiple concessions and to insert additional conditions into same (section 1, sub-section 4). Also, in accordance with the aim of the energy policy and the policy framework, the production mix will need to have a maximum share in sustainable energy, provided that the balance of the network remains guaranteed.

In order to achieve the above the policy in the coming years will focus on allowing access, in this case granting multiple concessions, to new parties in the production market, in order to create more market forces, with a view to the effects referred to earlier (in Part II) when this new market system was discussed. In principle the existing producers will be eligible for obtaining a concession, to the extent that they meet the requirements. New concessions will only be granted - in principle- based on a structural shortage of supply, through a tender procedure, based on needed additional capacity. The total need of capacity when granting concessions shall be determined based on an appraisal of the demand for current in the country. In the concession further requirements will be stipulated for, *inter alia*, the method of production, the production capability, the tariff structure and the development of prices.

7.7.2 Legal security current producers

As we addressed earlier in Part I, Aqualectra Production does not hold a production concession at the moment. However, in keeping with the new policy framework at the new concession system taking effect under conditions to be set at a later time, a concession will be granted to all current producers of (sustainable and non-sustainable) electricity, including the aforementioned company.

In the event, however, that an existing producer fails to comply with the new requirements to a considerable extent, the conditions to be laid down in this concession will prescribe an adjustment program. This adjustment program will have to be executed for a period (the adjustment period) prescribed by the Minister in charge of with energy affairs.

Implementation of the adjustment program under the supervision of the independent supervising authority or else of experts to be appointed by said supervising authority, may be linked to a more frequent requirement for reporting than was foreseen for the concession reporting and a shorter concession period than the legally permitted maximum for the duration of the concession (in this case 50 years).



At the end of the adjustment period the concession holder will be required to comply with the new requirements. Costs incurred by the supervising authority in connection with the supervision of the adjustment program will be charged to the concession holder, along with the usual concession fee.

7.7.3. Selection new producers and minimum selection criteria

As already referred to above, additional concessions will be issued for the production of electricity in order to gain sufficient capacity in the future. The government will start a program with the support and advice from the independent supervising authority for the selection and admission of new producers of (preferably sustainable) energy.

In case there are multiple candidates of equal merit, a public tender will be put out in order to be able to select the best qualified parties to grant a concession to in order to warrant the required growth in capacity. Insofar as no moratorium is promulgated by the government, suitable and reliable prospective producers may at all times apply for a concession for the production of electricity, without going through a public tender procedure.

The criteria that will in any case be applied to decide on a request for a concession either with or without an open bidding procedure are:

- the need for expansion of the production capacity;
- the experience with the industry of the prospective producer;
- the sustainability policy of the prospective producer;
- the extent to which and the manner in which the prospective producer is able to deliver the required capacity (with a preference for sustainable production);
- the production prices involved and the dependency on fossil fuels;
- the security of supply based on technical and operational quality specifications;
- compliance with the rules regarding connection to the transportation and distribution network and the feed of electricity.
- independence as a legal entity and corporate governance structure and
- financial stability (including projections for the future) and warranties .

7.7.4. Requirements for the production infrastructure

The concession holder will be obliged to build and maintain installations for the generation of electricity that will meet the requirements for electricity from consumers connected to the network at all times. These production installations should comply with the quality requirements and safety provisions as referred to in chapter 5. Also, maintenance to the production installations should be effected in accordance with a proper maintenance program. Failure to



comply with the quality requirements of generation may result in a fine imposed on the concession holder.

7.8. CONCESSION HOLDER NETWORK AND REQUIREMENTS OF THE TRANSPORTATION AND DISTRIBUTION NETWORK

7.8.1. Exclusive concession and permitted activities

As we addressed earlier in Part I, Aqualectra Distribution does not hold a concession at the moment. However, in keeping with the natural monopoly position of Aqualectra Distribution, in principle an exclusive concession will have to be granted to the current network company.

The coverage area will be the Country of Curaçao and the following activities are permitted under the exclusive distribution concession:

- the links to the network and the feed by producers;
- the transportation of electricity (via high and medium-voltage);
- the distribution of electricity (via medium and low-voltage) and
- the provision of electricity connections for end consumers, including a meter.

7.7.2. Convergence with international standards

Given the divergence of the most standard international voltage standards¹⁷, in due course there will have to be a switchover to a basic provision one or three phases 230/400V and 50Hz. This has a positive effect on the lifespan of equipment of consumers and also at the costs of the distribution network.

¹⁷The two most common international line voltage standards are, globally speaking and leaving exceptions aside, 110-120V / 60Hz for the United States and 220-240V / 50Hz for the rest of the world.

The distribution company will have to draw up a transition plan describing in what way and within what time the switchover will be realized.

7.8.3 Independence and sustainability

In order to warrant the *independence* of the network company, a number of obligations must be complied with, such as:



- a. a prohibition of price discrimination (in this case offering cheaper rates to affiliated individuals and companies);
- b. a prohibition to develop other commercial activities and
- c. to apply a separation between the concession activities and possible other activities within the holding company which the company belongs to. This unbundling concerns in any case, the financial administration or bookkeeping, yet in case of doubt over the independence it may also concern the operational activities of the company themselves.

The concession for the network company will include conditions that will compel the holder to draw up an internal sustainability program and to submit it to the supervising authority for assessment together with the long-term plan. The sustainability program should be in keeping with the aims of the energy policy and the policy framework for the energy supply (see Part II).

7.8.4. Requirements for the network

The network company will be obliged to construct and maintain installations for transportation and network of electricity that will meet the demands for electricity from consumers connected to the distribution network at all times. The concession holder also provides construction and maintenance of the public street lighting.

The preparation and execution of the construction and maintenance of the network or parts thereof must be effected in accordance with the government provision that are customary in this country, with regard to land management, public works, safety, environmental management and management and building of utility services.

The installations for the network will be required to comply with quality requirements and safety provisions as included in chapter V. Furthermore, maintenance on the installations for the network needs to be effected in accordance with a proper maintenance program. Failure to comply with the quality requirements may result in a fine imposed on the concession holder.

The concession holder is obliged to recover damages from any party who causes such to the network, insofar as these damages are legally or contractually attributable to that party or parties and the recovery is financially justified.

7.9. SUPPLY AND RATES

In the second phase of the new market model the supply link might be disentangled, in order to introduce more market orientation therein also. This means that, in principle multiple parties will



have access to the electricity market for the administrative purchase of electricity from the producers and the supply thereof to end consumers.

In order to be able to operate as an independent supplier a license will be required at a later stage (once the current law has been updated) so as to ensure that a supplier has the right qualities to carry out the activities in a reliable way. As long as the current law has not been updated the requirements for the supplier will be imposed via the agreement entered into with the network company or the concession holding producer. The concessions will include some conditions for that purpose.

The criteria which the network company or a concession holding producer (and after amendment of the law, also the independent supervising authority) will apply relative to the assessment of an application from a prospective supplier will in any case include:

- independence as a legal entity;
- financial stability;
- demonstrable knowledge and experience in this field;
- a business plan with healthy financial perspective for the business activities;
- technical capacity regarding purchase and sale of electricity and
- sustainability policy of the organization (in this case purchasing as much as possible from producers of sustainable energy).

7.9.1. Conditions for appointment as a supplier

After the prospective supplier has complied with all criteria, he may become eligible for appointment as a supplier (at a later stage: for a supplier's license) which may have conditions attached to it. In any case, these conditions include the following stipulations:

- stipulations regarding service provision based on non-discrimination;
- stipulations regarding service provision based on general conditions;
- stipulations regarding financial requirements (in this case billing and collection);
- stipulations regarding the handling of complaints and disputes;
- stipulations regarding the cut off policy;
- stipulations regarding the switch from suppliers and
- stipulations regarding adjustment of the tariffs.



7.9.2. Application of the non-discrimination principle

At the supply of electricity to a consumer, the supplier applies reasonable, objective and non-discriminatory conditions, among which the conditions that obligations may only be imposed on a consumer after these conditions have been made public in a manner which is apparent to the consumer and that similar cases will be treated equally.

7.9.3. General conditions

The end consumers enter into a contract with the concession holder regarding the connection and also regarding the supply of electricity with the supplier. End consumers are in a position of inequality as against the supplier as far as control is concerned, especially if the latter is a network company with a monopolistic position. In such a situation end consumers have no alternative but to enter into a contract with an exclusive concession holder. In the new situation the exclusive concession holder therefore is obliged to provide all parties with power in accordance with proper general and supply conditions.

However, the current general conditions for the connection and the supply conditions for the delivery of electricity from the network company (also the supplier) are quite dated and require amendments. With the current general conditions especially the consumer interests are insufficiently warranted at the moment.

This is why the new general conditions should in any case regulate:

- a. the financial and technical requirements applied by a concession holder for a consumer who acquires a connection to the network;
- b. the prescriptions the concession holder applies regarding the quality of the service provision and the rights and obligations of consumers (among which are included the supply conditions and the complaints procedure);
- c. in which situations and on what grounds the supply of electricity to a consumer may be suspended temporarily (cut off policy) and
- d. the prescriptions regarding switching suppliers.

These general conditions will have to meet strict requirements. This means that in principle, with due observance of the provisions in our Civil Code, BW 6:236 and 237, there should be no unreasonably onerous provisions in the general conditions.

7.9.4. Prescriptions regarding financial requirements: billing and collection



The invoice is an important element in the service provision to consumers, because of the fact that it is the primary means of communication between supplier and end consumer pertaining to the monthly provided service and the appurtenant costs.

The collection process is also relevant, especially for the supplier. It provides a final warranty to ensure that the services provided are paid for, so as to continue the service provision. On the other hand, the collection conditions need to be fair and equitable for the end consumers.

Considering the above, the billing and collection process will need requirements. The most important points towards which further requirements will be set are, in any case:

- presentation of the invoice with different cost components, including a fuel surcharge and a clear description of the applied rate, if applicable, with separate mention of production, transportation and supply;
- date of invoice and percentage of fixed meter readings;
- methods of payment and
- terms of payment.

7.9.5. Prescriptions on how to deal with complaints and disputes

At the moment the complaints procedure in use for end consumers of electricity is restricted and one-sided, where in case of a complaint this can be brought before the network company by submitting a complaints form at one of the offices. Within four weeks the company will make a decision in accordance with the general supply conditions, but the form stipulates that there is no guaranteed deadline for response.

There are no easy ways to appeal with an independent (external) dispute committee in this procedure. A disagreement with the current network company (also supplier) requires an almost immediate trip to the court, which in most cases is not feasible.

In keeping with the new policy and supervision framework, it is essential to have a clear, objective and especially low-threshold complaints procedure that functions well in order to protect consumer interests. This is why there will have to be further requirements on the complaints procedure, among other things the procedure to follow, the registration, the investigation and the time to settle matters.

In this respect the public interest of the community is served by setting up an agency where end consumers may present the disputes they have with the concession holder, in case a complaint has not led to an agreement initially. This independent dispute committee may include:



- an independent chairman;
- a representative from the government;
- a representative from the Fundashon pa Kunsumido (Foundation for the Protection of consumer interests);
- a representative from Curaçao Trade and Industry Association and
- a representative from Aqualectra.

This dispute committee is authorized to make binding decisions in accordance with its own regulations and procedures. As a starting point the regulations of the Dutch Dispute Committee for Consumers (*Nederlandse Stichting Geschillencommissie voor Consumentenzaken - SGC*) may be used. The procedure will need to be simple and swift and the initiator of the procedure will be required to pay a fee which will be reimbursed if his complaint is upheld, since the costs will then be borne by the supplier. The decisions will be published for the purpose of providing information. It is recommended to refer similar disputes with consumers to this dispute committee as well.

Provisions will have to be made in order to accomplish that the relevant parties may submit a financial contribution to cover the costs in connection with the tasks of the dispute committee.

Similar to the objection and appeal system in administrative law, the interested party will not be required to use the right to submit a notice of objection to the administrative body but will be able to immediately file an appeal, in this situation (pertaining to civil law) the consumer will neither be required to first submit a notice of objection with the dispute committee: the consumer may directly commence appeal proceedings with the competent court (provided that the complaint is not settled by the concession holder).

7.9.6. Prescriptions regarding the cut off from the network: cut off policy

Failure to pay, or else to pay in time on the part of the end consumers will pose a problem for the supplier. It will increase costs resulting from extra administrative and collection activities or increased interest being payable for banking facilities in case of lack of liquid assets.

Furthermore, if no strict measures are applied, this will create a strong precedent which may cause costs to increase. These extra costs will be passed on in the rates for the account of paying customers, which is not to be desired.



On the other hand, electricity is a primary necessity of life and should therefore, within reason, be available to everyone. Cutting off end consumers who fail to pay or who pay poorly is therefore a social problem, especially for low-income groups. The supplier therefore needs to make every effort to prevent customers from being (unnecessarily) cut off.

The best way to prevent being cut off is to offer a prepaid contract when the threat of a cut off is likely. The consumer then has full control of the use and therefore of the costs, against the same rates per kWh. Payments are made in advance and once the available credit balance is used up the consumer will be required to pay again in order for electricity to become available again. Respective to this possibility the supplier must be committed to immediately offer the end consumer a prepaid contract every time a cut off is imminent. The end consumer will not be obliged to accept this, but upon refusal he will be cut off by the concession holder. The exact operation, terms and conditions will need to be laid down further in the regulations.

7.9.7. Prescriptions regarding switching suppliers

In the event that in the second phase the option to choose is introduced in the supply link, the end consumers might change their supplier from time to time. Switching suppliers will necessitate procedures to be laid down through implementing regulations.

In order to keep this process manageable and practicable a change of supplier will only be permitted upon compliance with a notice period and after the current supplier has issued a certificate of no objection for the end consumer. This certificate will indicate that the supplier has no objections against the switch (for as far as giving notice or unpaid bills, etc. is concerned). This declaration can be a standard inclusion in the final settlement, with the deposit being released by the supplier.

Since every consumer must have a supplier to have access to electricity, Aqualectra will act as *ösupplier of last resortö* (or *ödefault service providerö*) in the local electricity market. This means that everyone without a supplier will automatically have Aqualectra appointed to them as supplier.

7.9.8. Prescriptions regarding amendment of rates

Finally, here are the prescriptions regarding the amendments of rates. Rates are an important aspect of the energy supply. A rate is realized by applying an internal rate structure which contains various components. It is possible to have certain cost components that cannot or can only partially be charged on to the end consumer, be it due to the nature of the cost item, or else due to inefficiency. In this case this may be above-average grid losses and write-offs on fixed assets that are not really necessary (considering the permitted activities).



Proposals from a supplier for amendment of the structure of the rates and the rates themselves, which the supplier may charge to the end consumer for the connection to the network and for the supply of electricity, will have to be received and approved by the government well before the desired commencement date.

Rate regulation is a subject of the economic supervision and is substantively dealt with further in chapter VIII.

7.10. REPORTING

7.10.1. Concession reports

Each year, concession holders will report about their company, the developments and plans, to the independent supervising authority via a concession report. To determine the substance of the concession report and annual reporting to the supervising authority for the independent suppliers, the concession holders and license holders will be consulted by the supervising authority in advance.

7.10.2. Long-term plan

Apart from the concession reports and license reports, every three years a long-term plan for the permitted activities is presented to the supervising authority, including an overview of the expected income and expenses, the infrastructural projects and other projects that are pending, the proposed distribution of the available resources for the separate projects, the generating capacity or network capacity which the concession holder may have at its disposal, be it directly or indirectly, along with the maintenance and renovation programs for the installations used by same. There will be advance consultation with the concession holders regarding the substance of the long-term plan.

The long-term plan will be approved by the independent supervising authority and updated annually by the concession holder, if necessary. The condition for approval of the long-term plan and its implementation implies that it shows responsible long term planning and business management, with due observance of:

- the economic development of Curaçao in general;
- the specific developments in the electricity market and
- the energy policy of Curaçao, with emphasis on the sustainability of investments and activities.



7.11. RENDERING ADVICE

Each concession holder will advise the Minister in charge of energy affairs and the independent supervising authority regarding the generation, transportation and supply of electricity in particular and the energy policy conducted in general. The form in which this will be effected will be determined further at the proposal of the independent supervising authority, after consultation with the electricity sector.

7.12. FEES

The concession holders owe the government a one-time concession fee concerning the granting of the concession and annually for costs in connection with the supervision conducted by the independent supervising authority. The government will determine a table of fees annually.

A license holder for electricity production owes a fee in connection with the granting of a license and a private individual who is exempted from either a concession or a license will only pay the costs involved with the inspection(s). Independent suppliers owe a fee to the government in connection with the granting of the license and the costs for conducting supervision on the compliance with the prescriptions.

All fees will be recorded, collected by the supervising authority and after deduction of its own income also transferred to the general budgetary means.

VIII. SUPERVISORY FRAMEWORK II: ECONOMIC REGULATION

8.1. INTRODUCTION

Economic supervision deals with regulation of micro-, as well as macro-economic aspects of the electricity sector, in order to attain the economic objectives of the policy framework. The economic regulation primarily concerns:

- Promoting market orientation;



- tariffs (non-discriminatory and cost-oriented);
- quality primarily tested against availability;
- universal provision of services and
- external effects.

The majority of these aspects were already addressed hereinbefore. Below the important economic objectives of the policy framework will be specifically expounded, the development of prices in the past years, price control, efficiency, **market orientation** and long term planning.

8.2. ECONOMIC OBJECTIVES

An important economic objective of *utility regulation* is taking care of *affordable provision of service* for the benefit of the end consumer. Another important economic objective in this respect, is the reform of the market through introduction of more market orientation to the market players.

Both stated objectives are examples of general economic objectives. An example of a micro-economic objective is the orientation to more efficiency on an entrepreneurial level, which means within the corporate management of the concessionholder.

Finally another typical corporate- but also branch-related economic objective is following and where necessary influencing the business-economic development of a concessionholder and the branch through tariff regulation or long term planning.

In the framework of the economic supervision, requirements will therefore be stipulated for and information will be gathered concerning certain relevant components of the operational activities, such as: to enable that the objectives as mentioned hereinbefore may be realized. Important requirements in this context are on a corporate level, for instance, transparency in the tariff structure, efficiency in the operational activities and long term planning. On branch level market orientation in the production and supply of electricity are a significant requirement. All four measures of economic regulation stated above (transparency, efficiency, long term planning and market orientation) either directly or indirectly aim at keeping the tariffs as low as possible for the end consumers.

Without economic regulation in a broad sense (thus not merely price control) there is virtually no incentive, particularly for a monopolistic supplier to strive for transparency, to produce



efficiently, or to orient itself on the dynamics of the market. Therefore economic regulation forms the basis of the new supervisory framework.

8.2. PRICE DEVELOPMENT DURING THE PAST YEARS

The concern about and attention for tariffs constitutes the nucleus of the economic policy. All components thereof, either directly, or indirectly purport to realizing a tariff development which is advantageous for the tariffs to end consumers.

During the past years, the tariffs charged by Aqualectra to its customers were determined by the Executive Council of the former Island Territory Curaçao, based on the operative Ordinance on Pricing (Regulation on price control of goods and services) which enables the government to either or not authorize tariff changes, or, as the case may be, to oblige the concessionholder to offer its services at a rate to be indicated by it.

It is a widely known fact that an increase of the prices by Aqualectra of recent years has caused much social and political discussion in the community. In view of the drastically increased fuel prices the government, with the cooperation of the government corporations involved, has created many a financing construction, and settlement mechanism, such as the Energy Fund and the Regulatory Account to prevent that the price increases would translate into the tariffs structure for the end consumers. Nevertheless the energy rates have risen rather rapidly of late years.

Table 2. Price development average energy tariffs 2004-2009

Average rates	2004	2005	2005	2007	2008	2009	2009
Starting date	1 Jan	1 Feb	3 Jun	4 Jul	1 Jun	5 Feb	7 Sep
Basic component	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919
Variable cost component	0.1077	0.1584	0.1960	0.2641	0.3363	0.2735	0.3838
Average rates	0.3996	0.4503	0.4879	0.5560	0.6282	0.5654	0.6757
Index (basis is 2004)	100	113	122	139	157	141	169
% Change	-	13%	8%	14%	13%	-10%	19.5%



8.3. PRICE REGULATION

8.3.1. Introduction

In view of the very limited impact of market orientation (monopoly), the nature of the product and the interests of the end consumers, the electricity sector is subjected to extensive price regulation, oriented to transparency, amount and structure of the tariffs. In the instances where tariff regulation is applied, micro- and macro-economic, as well as social considerations, will be observed. On a corporate level the following points of departure will be operative:

- non-discrimination;
- financial disentanglement of the various activities taking place in a corporate component, on behalf of transparency;
- cost-orientation of the tariffs, based on the costs of an efficient supplier and
- the normative return on investment to be determined on the basis of market motives.

Based on the Ordinance on Pricing¹⁸ a separate bookkeeping will be prescribed, to be conducted on behalf of the transparency for production, network and supply.

At the regulation of tariffs of the concessionholders, the supervisor will see to introducing sufficient transparency in the tariffs and the supporting cost calculation. The application of cross-subsidizing will also be subject to price regulation.

¹⁸Based on this ordinance accounting procedures may be prescribed from which it becomes evident how the prices at which goods and services are offered, come about.

Cross-subsidizing is not permitted in principle, since they undermine the transparency. If the prices should not be affordable enough for part of the population or companies, then subsidizing may be effected through a social policy.

Point of departure at evaluating the amendment of tariffs are the costs of an efficient supplier with a normative ceiling of the return on its investments. At the evaluation, the manner in which the revenues come into being, will also be taken into consideration, to safeguard the continuity of the operational activities. Considerations of efficiency will be applicable based on benchmarking the data of comparable enterprises in the region.

The price regulation will be separately applicable for the various links production, network and supply.



8.3.2. Supervision on the development of prices for electricity

From the resolutions of the Executive Council, cited in Chapter II regarding the determination of the energy rates, it may be deduced that the network company (also the supplier of electricity) is permitted to charge on the reasonable costs, investments and return on its capital (to a maximum of 8%) by means of a so-called *all inclusive capö* tariff structure, whereby ultimately a maximum tariff (adjustment) is still taken into account.

All this implies that the Executive Council at that time opted for a hybrid tariff structure, with elements of *rate of returnö* regulation, as well as *price capö* regulation. In this Policy- and Supervision framework the tariff structure described hereinbefore, unless amended, will be applied as the point of departure for assessment of tariff adjustments. One thing and the other with due observance of the principle that the tariffs for the end consumers will be regulated based on a price per link.

The operational (variable) costs in non-sustainable production consist for a substantial part of fuel cost. The fuel component herewith ought to be made separately discernable and based on a fuel strategy which strives for optimization (efficiency) of costs on the long term. The fuel component is determined monthly in principle, as a result of which the community may easily follow the adjustments based on the fluctuations in the oil price.

The fixed costs (i.c. all-in costs minus fuel cost) are adjusted less frequently. With regulation the system of benchmarking is used to standardize the cost components and the prices.

For the electricity sector there will be a situation whereby the price regulation will be oriented to financial incentives for quality, as well as improvement of the efficiency. Investments for improving the quality of the network (inclusive of innovations) may lead to an upward pressure on prices. That is why investments must always be evaluated on their efficacy.

The price indices may also lead to higher prices, for example labor costs and the purchase of materials. A downward pressure will take effect when improvements are achieved through efficiency. Decreasing the administrative- and technical NRE, reducing the number of disruptions and solving same more efficiently, are such examples.

Above-mentioned elements will be investigated separately in order to attain an optimum balance between the quality and the price of the services rendered.



At price regulation all services are assessed in correlation. Among those are the regular rates, but also the rates for reverse supply and the nonrecurrent costs for connections. The rates for reverse supply must provide an incentive for small-scale sustainable production and must be strictly cost-oriented with same.

The nonrecurrent and connection costs for electricity deserve special attention in this framework. These have remained unchanged since 1988. They may be sub-divided into the costs for a new or a heavier connection, the costs for rental of the meters, the costs, for instance, for payments in arrears and fines when the seals are broken. The concept of a uniform connection rate is herewith contemplated, by which the costs are apportioned among all (new) connections and only in exceptional cases, additional charges are levied.

8.4. EFFICIENCY

The cost of electricity is determined for a substantial part by the extent of the efficiency by which the operation takes place. The degree of efficiency is in principle determined based on two factors:

1. utilizing up to date technologies and
2. utilization of capacity.

In the first instance, for example, it must be noted that the production technology of Mundo Nobo is outdated and that here there is a case of inefficiency.

As far as the aforementioned second factor is concerned, the high non-revenue electricity, as well as disruptions (power failures) are indicative of a sub-standard utilization of capacity. Both (e.g. high NRE and disruptions) lead to inefficiency.

Redressing of the inefficiencies pointed out above, implies a reduction of cost and a downward pressure on the rates for the end consumers. For instance preventing disruptions as much as possible, or realizing a shorter duration of the power failures, will lead to fewer costs and will thus cause a downward pressure on the tariffs.

A special point of attention for the efficiency of the electricity network is furthermore the second factor mentioned above, the so-called non-revenue electricity (NRE). Losses are inevitable due to heat loss on the conductors, which increase at lower voltages. Losses are also caused at transformers and other network elements. These are generally termed technical network losses. Apart from that there also exists a so-called administrative NRE, among other things, by



differences in measuring and by fraudulent actions. The total is called "Non Revenue Electricity (NRE)", in other words all the produced/distributed KWh of electricity that yields no revenue because it cannot be billed.

Although of late years there has been a trend of diminishing, the NRE has to go down more rapidly (i.e. to 6-8%). Here also redress implies a lower cost price and therefore a downward pressure on the rates.

Table 3. Non-revenue electricity 2004-2009

YEAR	NON-REVENUE ELECTRICITY	CARILEC AVERAGE
2004	16,3%	13,0%
2005	15,3%	11,5%
2006	14,8%	11,0%
2007	14,0%	-
2008	13,3%	-
2009	13,0%	-
2010	12,0% (target)	-

Every year investments are made in the transportation- and distribution network. The regulation will finally also be oriented to the efficacy of these investments and whether the costs involved are properly related to the necessary improvement of quality of the network. At the moment there is no appropriate insight into the planned investments for the coming year and the balancing of the interests attendant thereto. For such insight an actualized long term planning is essential.

8.5. MARKET ORIENTATION

In many countries market reform is an essential component of the policy. By introducing market orientation in the production, and perhaps also in the supply links of the energy provision in due course the quality of the provision of service and the availability of electricity will improve for the population. Market orientation will also force all suppliers to produce more efficiently, resulting into lower rates for the end consumers.

The reform of the electricity market by introducing more market orientation is in accordance with the international trend regarding utility regulation. Particularly the positive consequences for the consumers and the society as a whole respective to the reform of the telecommunication market, are a significant motivation for introducing more market orientation into the electricity sector.



Liberalization in the telecommunications market resulted into, and as anticipated, will also in the electricity sector result into more market orientation and focus on efficiency, factors which have remained underrated in a monopolistic situation, because there is no, or hardly any, pressure on the monopolist from the market.

8.6. LONG TERM PLANNING

At the discussion in paragraph 8.4 on the efficacy of the investments made, the merit of long term planning was already expounded.

All concessionholders will have to periodically submit a long term plan for their activities resulting from the concession under the new supervision framework, inclusive of an overview of the anticipated income and the operational costs, the infrastructural and other investment projects to be carried out, the proposed allocation of the available means to the separate projects, the existing and the anticipated generating- and transporting capacity, which the concessionholder will have at its disposal, either directly or indirectly (based on an analysis of supply and demand), a maintenance and renovation program related to the installations in use by the concessionholder for generating electricity or transportation thereof.

The long term plan, which will be actualized annually, furthermore at any rate depending on the type of concessionholder, states the following data:

- planned renovation and improvement of the provision of service;
- planned renovation and improvement of the network;
- planned renovation and improvement of installations for generating electricity;

- the construction and purchase of installations for the net, based on the operative capacity plan;
- the safety, security and other improvement programs for the installations for generating electricity or for the distribution network and
- the inception and the operation of a provision for dealing with complaints from the consumers, by an independent entity.

The long term plan will annually be discussed by the concessionholder with the independent supervisor, together with the reporting on the concession. In this way the independent supervisor will be able, whenever necessary, to give guidance respective to the elements of the policy which are not (yet) in accordance with the policy framework approved by the government.



IX. NECESSARY CONDITIONS FOR THE EFFECTIVE IMPLEMENTATION OF THE POLICY AND SUPERVISION FRAMEWORK

9.1. INTRODUCTION

The policy and supervision framework as formulated hereinbefore is only a first step on the way to a greater objective. It is naturally proof of a proper course of affairs, if it may be recorded in a transparent manner which are the most important objectives of a certain activity (in this case regulating the electricity market) and the manner in which those objectives might be attained. More important is, however, the realization in practice of whatever are the prospective aims. In order to achieve this, more than just a policy framework will be necessary. Herewith in the first place one may consider an organization which takes up the implementation of the policy framework and which is made responsible for propagating the policy as assigned in the policy framework. Such organization is the Bureau.

In this frame work we momentarily dwell on the nature of the Bureau as multi-sectoral supervisor (9.2.) and the specific activities and objectives which the Bureau would have to execute, respectively pursue (9.3.). Then one has a proper idea of what the Bureau stands for and of what it would have to do in the electricity market. Finally in 9.4. we dwell on the necessary conditions, or else the critical success factors for an effective implementation of the policy and supervision framework as inserted in Part II and Part III.

9.2. THE NATURE OF THE SUPERVISOR

The Bureau is a multi-sectoral supervisory entity. This type of supervisor exercises supervision on various sectors simultaneously (communication, water, energy, transport), which are not mutually characterized by the existence of substitution or by being complementary in the rendering of services. Two important reasons why countries elect to subject various sectors to one supervising entity, are:

a. *Efficiency.*

This implies an efficient clustering of scarce expertise in the field of supervision, aiming at a utilization in the best possible manner of the scarce supervisory capabilities and resources by concentrating same, and in this way reach the so-called *œconomies of scale* and

b. *Concentration of supervision on the potential negative effects of considerable market power.*

This implies, among other things, supervision on the (pricing) conduct of the powerful market parties, such as monopolists and oligopolists. The objective herewith is to make use, to the maximum extent possible, of the existing knowledge, experience, and specific



expertise of an existing supervisory entity to exercise the supervision on suppliers with considerable market power in other sectors.

Although the sectors under supervision may be individually different in nature, they have in common that they are served by relatively large market parties, or, as the case may be, monopolists who may charge high tariffs to the consumers for services which are to be counted among the basic needs of the consumers (such as water, electricity, gas, transportation and telecommunication).

The sensitivity of the tariff structures in connection with the stated services, is an important community-related question for the government, on which supervision must be exercised in the interest of the consumer. Therefore one often discerns with Public Utility Commissions (to be referred to hereinafter as: PUCs) that as much attention is paid to the observance of the interests of the consumers and to complaints, as to the material (technical, economic and legal) supervision.

The classical form of multi-sectoral supervision has been in place for quite some time now in the United States of America, where various PUCs exist which are even older than the national telecom supervisor FCC. The PUCs generally exercise supervision on all the services related to utilities, such as (interregional) telecommunication, electricity, gas, water and transportation. Most American PUCs are primarily organized in a sector-oriented way, as far as the regulating branch is concerned, whereby only operational and legal services are task-oriented in their organization (see for example the PUCs in the states of California, Colorado, Indiana or New York).

In other countries as well multi-sectoral supervisors are found, such as Costa Rica, Letland, Luxembourg, Panama, Barbados and Jamaica. In Jamaica the Office for Utility Regulation (OUR) has organized the regulating branch in a sector-oriented manner. When exercising supervision, the Bureau also adheres to this sectoral approach.

9.3. GENERAL OBJECTIVES AND REACH OF THE SUPERVISION ON THE ELECTRICITY PROVISION

The Island Territory Curaçao at one time approached the Bureau, based on its expertise in the field of supervision on companies of public utility, to exercise supervision on Aqualectra, which in two entities each, is in charge of the production and transportation of [water and] electricity in Curaçao.



The supervision by the Bureau up to now has been of an advisory nature towards the government of Curaçao, since the policy and the rates are determined by the government. Thus the government remains in charge of the ultimate responsibility for decision-making in the field of production, transportation and supply of electricity.

The new supervision is concentrated on access to the market, rates, quality of the services rendered by providers on the electricity market, safeguarding the interests of the consumers, and sustainable economic development. The supervision to be exercised by the Bureau is concentrated on the following general objectives, in the manner as stated below:

Market access

- adequate market orientation (particularly in production);

Tariffs

- non-discrimination and
- cost-orientation;

Quality of the services rendered by providers

- reliable provision of services and therefore high availability (ösecurity of supplyö);

Consumer interests

- affordable provision of service and
- protection of the rights and interests of the end-consumers (öconsumer rightsö);

Sustainable development

- promoting the development of the provision of sustainable energy.

The supervision is therefore in a material sense focused on causing the provision of electricity to function as adequately as possible for the benefit of end consumers and the community at large. Materially the Bureau has the following tasks in connection therewith when exercising the supervision:

- a. developing a policy and supervision framework regarding the production, transportation and supply of electricity;
- b. advising regarding the implementation of the established policy and the framework referred to sub a;
- c. advising in connection with tariff structures and conditions for the production, transportation and supply of electricity;



- d. advising in connection with determining guidelines for connection rates, supply rates and end consumers' rates for electricity;
- e. advising in connection with establishing quality guidelines for the production- and transportation process of electricity;
- f. advising respective to the observance of quality standards, in order to increase the efficiency and transparency of the operational activities of the concessionholders and to provide consumers with end products of high quality
- g. advising regarding dealing with requests for amendment of the tariff structures, general terms and conditions for the supply of electricity, connection rates, supply rates and rates for the end consumers of electricity;
- h. advising regarding the observance of the National Ordinance on Electricity Concessions;
- i. seeing to the registration and charting of underground and above-ground infrastructure of concessionholders and
- j. following the developments on the local and international level in markets of production, transportation and supply of electricity.

9.4. CRITICAL SUCCESS FACTORS FOR EFFECTIVE SUPERVISION

In order to cause the supervision to be effective, the Bureau is, among other things, dependent on a few crucial internal and external factors. These are:

Internally

- On being able independently or in an unrestrained manner, to reach a professional opinion on the course to be followed or the decision to be made in the framework of the implementation of the policy and supervision framework, without the influence or *ostracization* of third parties (*independance*);
- Having sufficient professional experience, expert co-workers and institutional knowledge within the supervisory entity (*experience and expertise*);

Externally

- the necessary financial means to be able to carry out the activities in an independent and expert manner (*sufficient financial means*);
- an effective legislative framework with adequate powers for the supervision (*adequate legislative framework and powers*) and
- complete dedication and swift decision-making of the administrative body relative to the implementation of policy and supervision framework (*political commitment*).



These conditions may be qualified as *öprior conditionsö* (ex-ante conditions), *östructural conditionsö* or *öhybrid conditionsö* (the latter have characteristics of both types) which must be complied with in order to enable the realization of the policy objectives.

Important *öprior conditionsö* are in this respect, for example, having sufficient financial means and an effective legal framework. The Bureau currently disposes of sufficient expert knowledge to execute the tasks and the government holds the view that the necessary financial means will be available for the execution of the tasks. However, the present legislative framework is no longer up-to-date and has to be actually updated as soon as possible. The most important energy legislation and the implementing resolutions should be approved as soon as possible by the Parliament.

Besides know-how and financial means, the dedication (*öcommitmentö*) and swift decision-making by the government is pre-eminently one of the most significant *östructural conditionsö*. This *öcommitmentö* will have to manifest itself, for instance, by a swift and timely decision-making necessary by the government in the framework of its role of regulator, which is clearly separate from its role as shareholder of the incumbent. Due to the great economic interests and the sensitivity of the public for, among other things, tariff increases, and the availability of electricity, without a structural commitment from the government a steady mode of conduct and a successful implementation of the policy and supervision framework will be hardly feasible. Finally a commitment to swift decision-making is necessary to avoid unnecessary delays in the production-, transportation and supervisory process.

The government is convinced that the implementation of the new market model and the new way of market regulation will offer more perspectives for the attainment of the policy objectives in comparison with the present situation. Therefore it will see to the compliance with all the necessary conditions for the successful achievement of this crucial part of the governmental policy for the coming years.
