



# Energy-policy Framework Conditions for Electricity Markets and Renewable Energies

## 23 Country Analyses Chapter Dominican Republic

Eschborn, September 2007

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Electricity Markets and Renewable Energies**

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## New Edition of the TERNA Country Survey

Since the first edition of the TERNA country survey appeared in 1999, there has been a distinct heightening of public and political awareness of the consequences of climate change and of energy provision as a key factor in sustainable development. In Germany and other industrialised countries, a political tailwind, effective promotion mechanisms and rising energy prices have created the conditions for a dynamic market in which renewable forms of energy are exhibiting high growth rates within the energy mix. In 2006, global new investment in renewables amounted to US\$ 70.9 billion – an increase of 43 % over 2005.

Strong economic development in many emerging countries has triggered rapidly rising demand for energy and competition on the international oil market. Against the background of the rising cost of fossil fuels, supply risks and damage to the environment, the significance of renewable energy as a means of generating electricity is growing – also in developing and emerging countries: according to analyses conducted by the Renewable Energy Policy Network for the 21<sup>st</sup> Century (REN21), 39 countries have set expansion targets for renewable energy sources and introduced promotion mechanisms, nine of which are developing or emerging countries. Of total new investment in renewable energy around the world, US\$ 15 billion was invested in developing and emerging countries. Nevertheless, the majority of countries still have a long road ahead of them before they overcome existing barriers to the successful introduction of renewable forms of energy.

The German and European market acts as the driving force for the wind energy industry and provides an indispensable background of experience. However, growth in the industry is also increasingly apparent in developing and emerging countries. It is the successes in countries such as India, China and Brazil which encourage commitment beyond the borders of industrialised nations. In those three countries there is a growing proportion of local content in the systems and equipment they produce – and not only for supply to their own domestic markets.

A number of other countries though, too, are erecting their first wind farms, thereby establishing the basis for gaining experience to be utilised in future markets.

To help interested players gain access to the new markets, this survey provides detailed descriptions of the framework conditions for electricity markets and renewable energy in 23 developing and emerging countries.

Latin America	Africa/Middle East	Asia
Argentina	Egypt	Bangladesh
Brazil	Ethiopia	China
Caribbean States	Jordan	India
Chile	Morocco	Indonesia
Colombia	Namibia	Pakistan
Costa Rica	South Africa	Philippines
Dominican Republic	Tunisia	Viet Nam
Mexico		
Nicaragua		

This latest country survey and the previous editions are available on our homepage: [www.gtz.de/wind](http://www.gtz.de/wind). For the first time, the publication is also available on CD-ROM. For information on how to obtain this, again, go to the homepage.

Our grateful thanks go to a large number of GTZ staff members and other experts in the field for their help in putting this information together.

Eschborn, September 2007

## Legal Information

1. The data used in this study is based on both publicly accessible sources of information (publications, specialist articles, internet sites, conference papers etc.) and non-public papers (for example internal expert reports from promoting institutions), as well as personal interviews with experts (for example officials at energy ministries in the investigated countries and project staff at promoting institutions). Although all information has been checked as far as possible, errors cannot be ruled out. Neither the GTZ nor the authors can therefore provide any guarantee of the accuracy of the data included in this study; no liability can be accepted for any loss or damage resulting from use of the data included in the study.
2. The sole authorised user of this study for all forms of use is the GTZ. Duplication or reproduction of all or part of the study (including transfer to data storage media) and distribution for non-commercial purposes is permitted, provided the GTZ and the TERNA Wind Energy Programme are named as the source. Other uses, including duplication, reproduction or distribution of all or part of the study for commercial purposes, require the prior written consent of the GTZ.

## The TERNA Wind Energy Programme

There is great potential for generating electricity from renewable energy sources in many developing and emerging countries. Obstacles to the exploitation of such sources include a lack of knowledge of framework conditions in the energy industry and insufficient transparency with regard to the prior experience and interests of national actors.

The purpose of the TERNA (Technical Expertise for Renewable Energy Application) wind energy programme, implemented by GTZ on behalf of the Federal German Ministry for Economic Cooperation and Development (BMZ), is to assist partners in developing and emerging countries in planning and developing wind power projects. Since 1988 the TERNA programme has pursued the twin goals of laying the foundations for sound investment decisions while at the same time enabling partners to assess wind energy potentials, plan wind energy projects and improve energy-policy frameworks for renewable forms of energy.

The TERNA wind energy programme's partners are institutions in developing and emerging countries that are interested in commercial exploitation of wind power. These include, for example, ministries or government institutions which have the mandate to develop BOT/BOO projects, state-owned or private energy supply companies (utilities) and private enterprises (independent power producers).

TERNA offers its partners expertise and experience. In order to initiate wind power projects, favourable sites must be identified and their wind energy potential ascertained. To do this, wind measurements are normally taken over a period of at least twelve months and wind reports are drawn up. If promising wind speeds are found, the next step is to conduct project studies investigating the technical design and economic feasibility. TERNA also provides advice to partners on matters of finance, thus closing the gap between potential investors and offers of funding from national and international donors.

If required, CDM baseline studies can be prepared and advice can be offered to potential operators on setting up an efficient operator structure. In order to ensure as much transfer of know-how as possible, efforts are made to ensure cooperation between international and local experts, for example when preparing the studies.

In successful cases, TERNA initiates investment-ready wind farm projects by this method. TERNA itself is not involved in financing. In addition to the activities that are tied to specific locations, TERNA advises its partners on how to establish suitable framework conditions for the promotion of renewable energy sources.

Up until 2007, TERNA has been active in over ten countries around the world.

Further information on GTZ's TERNA wind energy programme, the application procedure etc. is available at [www.gtz.de/wind](http://www.gtz.de/wind) or directly from:

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## 5 Dominican Republic

### 5.1 Electricity Market

#### Installed capacity

The power generating capacity feeding into the public grid in the Dominican Republic totals 3,164 MW (December 2005) and relies largely on fossil fuels (coal, fuel oil and natural gas, totalling 85 %) and, to a lesser degree, on hydropower (468 MW or 15 %). This heavy dependence on fossil fuels, all of which have to be imported, makes power generation more expensive and places a heavy burden on the trade balance of the Dominican Republic.

#### Lack of supply reliability

2005 saw demand for a maximum output of 1,498 MW. Despite the installed capacity of 3,164 MW, the reserve capacity available on some days was not sufficient to cover this demand. Given an assumed level of deliberate demand suppression of 20 % (corresponding to about 375 MW) currently imposed through rationing, in no way it can be said that there is full provision of supply.<sup>2</sup>

Company		Total	Steam turbines	Gas turbines	Combined-cycle	Fuel oil	Hydropower	Total
		MW	%	%	%	%	%	%
Former CDE generation capacity	Haina	663	10.9	5.2		4.8		21.0
	Itabo	432	8.2	5.5				13.7
State-owned hydropower	EGEHID	468					14.8	14.8
Independent private producers	GPLV: Generadora Palamara La Vega GPLV	195				6.2		6.2
	CEPP: Cia. De Electricidad de Puerto Plata	77				2.4		2.4
	Monte Rio	100				3.2		3.2
	AES Andrés	319			10.1			10.1
	Metaldom: Complejo Metalurgico Dominicano	42				1.3		1.3
	DPP: Dominican Power Partners	236		7.5				7.5
	Seaboard: Transcontinental Capital Corp.	116				3.68		3.68
IPP exclusively for CDEEE	Smith Enron Cogeneration Ltd.	185			5.9			5.9
	Maxon Engineering Services	30				1.0		1.0
	Cia. Eléctrica de San Pedro de Macorix (CESPM)	300			9.5			9.5
	<b>Total</b>	<b>3,164</b>	<b>19.2</b>	<b>18.1</b>	<b>25.4</b>	<b>22.5</b>	<b>14.8</b>	<b>100.0</b>

Tab. 1: Breakdown of installed capacities according to producer and type of generation; Dominican Republic; in MW and %; 2005<sup>1</sup>

<sup>1</sup> Organismo Coordinador, Annual Report 2005, Table 2.

<sup>2</sup> Organismo Coordinador, Memoria 2005, Fig. 6.

This shortage of electricity has characterised the prevailing situation since the end of the 1990s and could not even be remedied by the net expansion of power station capacities by some 630 MW or so undertaken between the end of 2000 and mid-2006. To achieve this expansion of capacity, the state-owned electricity utility, Corporación Dominicana de Empresas Eléctricas Estatales (CDEEE), called for tenders for two 600 MW coal-fired power plants, the contracts being awarded to Emirates Power from the United Arab Emirates and the Chinese company Sichuan Plant and Machinery, respectively. The bases of these contracts are long-term power purchase agreements (PPAs) under which CDEEE covers the fuel costs (coal) and the generating costs are guaranteed for the operator.<sup>3</sup> Construction of these power plants has not yet begun because guarantees demanded have not yet been met.

The reason for the unsatisfactory supply situation is the inability of the electricity sector to pass on the high generating costs and the additional costs incurred through distribution losses to the consumers.<sup>4</sup> To prevent the existing balance – that has to be financed from the national budget – from exceeding the framework laid down by international financing institutions (International Monetary Fund, World Bank), certain end customers are supplied power periodically only, staggered according to their payment behaviour. The success of the government's efforts to make the system more efficient and financeable is being measured, at the request of the World Bank, against the Cash Recovery Index (CRI), which combines the losses<sup>5</sup> and the payment behaviour of the customers by multiplying the two together. At the end of 2005 this index stood at 53, that is, only 53% of the electricity purchased by the national grid actually generates income. Prior to the capital funding that began in 1997, the CRI stood at just 40. Plans envisage improvement to an index level of 80 by 2012. The financial losses incurred demand state subsidies to the tune of around US\$ 600 million per annum (2006). This includes the capital costs of debts amounting to some US\$ 170 million from previous years.

### Power generation

Gross power generation for the national grid totalled 9,712 GWh in 2005 and was therefore – with rising indicators overall – 6.5% below the historical record of 2003. In 2005, the three power distribution companies together sold 5,268 GWh to the end customers.

Power generation in 2005 relied on heavy fuel oil (50%), hydropower (19%), coal (13%), natural gas (10%) and diesel (8%).

		EDESUR	EDENORTE	EDEESTE	Total
Electricity sales	GWh	2,196	1,447	1,627	5,269
Technical losses (distribution only)	GWh	452	285	309	1,046
	%	11.6	12.0	11.5	11.7
Non-technical losses (distribution only)	GWh	1,246	640	753	2,639
	%	32	27	28	29.5
Peak load	MW	546	491	463	1,499

Tab. 2: Electricity sales and power-distribution losses; Dominican Republic; 2005<sup>6</sup>

### Power transmission and distribution

The backbone of the main electricity supply in the Dominican Republic comprises a transmission network that is made up of almost 1,500 km of 138-kV power lines extending radially outward from Santo Domingo to the north, west and east, plus a good 1,600 km of 69-kV lines. To reinforce this grid, a second 138-kV ring stretching 38 km right round the capital city, Santo Domingo, will enter into service at the end of 2006 and a 130 km-long, 345-kV spur will be built northwards to the town of Santiago. The national transmission and distribution networks supply around 85% of households throughout the country with electricity.

3 CDEEE, Plan de Acción 2006.

4 See section headed "Electricity prices".

5 This includes technical and non-technical losses.

6 Source: Superintendencia de Electricidad, July 2006.

Roughly 45 % of all electricity generated is lost at the transmission and distribution level due to technical and non-technical factors. The number of power purchasers with illegal connections, unlicensed routing of electricity and poor payment behaviour are the causes of large non-technical losses, amounting to twice the level of technical network power losses.

	GWh
Net power demand	11,990
Power deficit	2,278
Gross power generation	9,712
Transmission losses	234
Net power generation	9,478
Supply to distributors et al	8,953
Technical distribution losses	1,046
Non-technical distribution losses	2,639
Electricity sales	5,269

**Tab. 3: Breakdown of public power supply; Dominican Republic; GWh; 2005<sup>7</sup>**

### Power consumption

Of the 2 million or so households in the country, 0.8 million are registered as customers. Their power consumption is metered. Their average consumption is low, amounting to some 300 kWh per annum. This figure is in fact 40 kWh lower than it was in 2003, a fact that can be put down to the rationing measures introduced. Add to these some 480,000 households in the poor quarters of the towns, which, as part of the Programme to Reduce Power Failures (Programa de Reducción de Apagones – PRA), are supplied electricity by the hour and pay only a monthly flat rate of approximately US\$ 8. The number of illegal connections is estimated at around 200,000.

The high proportion of total public consumption accounted for by households (47 %) only partially reflects actual reality in the electricity sector as a whole. On the one hand, permanent rationing of electricity is leading to commercial businesses, hotels, etc. increasingly switching to generating their own electricity, which of course does not appear in the statistics. On the other hand, industrial consumers who generate their own power are also not included in the statistics. Their share of the sector is presumably quite considerable, there being around 40 large-scale companies registered that buy in excise duty-exempted hydrocarbon fuels for generating their own electricity. The amount of electricity they generate collectively is, however, unknown. This explains why the amount of power fed from the public grid to industry fell by around 20 % between 2002 and 2005, while the gross national product rose just under 3 % in the same period.<sup>8</sup>

	Number of customers	Consumption (GWh)
Households	808,380	2,477
Services	78,952	506
Industry	9,006	1,712
Public sector	6,007	574
Total	902,345	5,269

**Tab. 4: Electricity customers and consumption; Dominican Republic; GWh; 2005<sup>9</sup>**

### Electricity prices

#### IPP electricity prices

In July 2006, the average contractual producer's price for electricity from all sources (including hydropower) amounted to 13.1 US cents/kWh. At the same time, 9.1 US cents/kWh was achieved on the spot market. The overall market-average producer's price therefore amounted to 12.7 US cents/kWh, an increase of 84 % compared with June 2003 due to the increase in crude oil prices.

<sup>7</sup> Source: Superintendencia de Electricidad, July 2006; in-house calculations of losses.

<sup>8</sup> CEPAL 2005: annual statistics, GNP in US\$ at market prices, Table 2.1.1.3.

<sup>9</sup> Source: Superintendencia de Electricidad, July 2006.

### Electricity tariffs

The household tariffs (BTS1) have a progressive component for both the fixed, consumption-dependent base prices (standing charges) and the kilowatt-hour rates. The first 200 kWh/month for all private consumers are heavily subsidised in the form of a 9.3 US cents/kWh tariff, while a private-consumer tariff of 14 US cents/kWh for up to 300 kWh/month just about covers the procurement costs. Consumers who require more than 700 kWh/month are charged a tariff of 26 US cents/kWh. These tariffs are subject to monthly adjustment by the Superintendencia de Electricidad, which is supposed to take into account the fuel prices, the exchange rate (Dominican pesos to the US dollar) and the general rate of inflation, but political decisions, too. As a result, it is frequently the case that political expediencies prevent the necessary adjustments from being made and the tariffs are adjusted only to an inadequate degree or not at all. The resulting losses suffered by the distributors are met by the government in the form of monthly compensation payments. The overall level of subsidization for households with a consumption of less than 300 kWh per month is estimated to be just under US\$ 160 million for 2006 (and is part of the total subsidy of around US\$ 600 million).

### 5.2 Market Actors

Ever since the early 1990s, as a result of the Law on Energy Sector Development Incentives (Ley de Incentivo al Desarrollo Energético), not only the formerly state-owned Dominican Electricity Company CDE (Corporación Dominicana de Electricidad), but also a dozen (mainly US) independent power providers have been active on the Dominican electricity market. Together, these companies are providing roughly half of the installed generating capacity, which is composed solely of thermal power stations.

#### State-owned companies

Under the General Electricity Act of 2001, independent state-owned power transmission companies (Empresa de Transmisión Eléctrica Dominicana – ETED and Empresa de Generación Hidro-eléctrica Dominicana – EGEHID) were established and given responsibility for the transmission network and for the operation of hydroelectric power plants, which were not included in the privatisation programme. The tasks of electrification in rural regions and urban fringes, coordinating electricity companies and administering and implementing contracts with independent power producers were combined and assigned to a new company called Corporación Dominicana de Empresas Eléctricas Estatales (CDEEE), which also serves as a holding company for ETED and EGEHID.<sup>10</sup>

#### Itabo and Haina

CDE's thermal power generating division was split up into two separate companies. The new thermal power operator, Itabo, was partially owned by Gener<sup>11</sup> (Chile) and Coastal (USA), while Seaboard and what was Enron (both USA) initially held interests in the power producer, Haina.<sup>12</sup> At the end of 2005, each of those two companies held 34.7% of the country's total installed power generating capacity.

<sup>10</sup> According to the Madrid Agreement dating from July 18, 2001, certain contracts with independent power producers are to be transferred from CDEEE to the distribution companies.

<sup>11</sup> Now operating under the name of AESGener, with AES (USA) as majority owner.

<sup>12</sup> Ownership has changed a number of times since then. The present owner of the holding is a consortium comprising Commonwealth Development Corporation (UK), Basic Energy (USA), Fondo Básico del Caribe, Haert Energy (USA) and the Dominican Grupo Nacional de Finanzas.

### **New power providers**

The statistics list the “independent, private” power producers which sell their electricity either directly to a supply contract partner (normally a regional power distributor) or via the electricity bourse (spot market). Alongside these are the IPPs, which operate on the basis of power purchase agreements (PPAs) and generate exclusively for CDEEE. Now, CDEEE is to be gradually relieved of its role as a speculative buyer of electricity based on new negotiations with the power producers and, hence, all these PPAs are to be replaced with new contract agreements.

### **Distribution companies**

The power distribution networks were partially privatized in 1999. A group under the leadership of the Spanish company Unión Fenosa took over the northern and southern grids (EDENORTE/EDESUR), with a 50% holding in each grid, and the US company AES bought itself into the eastern grid (EDEESTE). In both cases, operational management was left to these private co-owners. Due to the poor financial and operational situation of the sales companies, the Dominican Government reacquired, through CDEEE, Unión Fenosa's stakes in EDENORTE and EDESUR in September 2003. Efforts made in the meantime to reprivatise these grids have come to nothing.

### **Other Actors in the Electricity Sector**

#### **Comisión Nacional de Energía (CNE)**

The duties of the Comisión Nacional de Energía (CNE), which was established in 2001, include the formulation of laws and ordinances and the preparation of supply and demand forecasts. Acting under the auspices of the Ministry of Industry & Commerce and the Ministry of Finance, CNE is subordinate to the Technical Secretariat of the Office of the President, the Director of the Central Bank, the Ministry of Agriculture, the Ministry of the Environment and the Director of the Telecommunications Institute.

This executive body has the legal power to enact regulations for the power sector. Since mid-2003, CNE has a new department for alternative energy sources and rational use of energy (Gerencia Energías Alternas y Uso Racional de Energía).

#### **Regulatory authority SIE**

The Superintendencia de Electricidad (SIE), which was established by decree no. 118-98 on 16 March 1998 and began its work in July 1999, supervises market regulation. SIE's status as a public law body was officially established by the General Electricity Act of 2001. Its duties include in particular the supervision of prices for regulated consumers (households, trade & commerce), who have to purchase electricity from one of the distribution companies. By contrast, large consumers are allowed to negotiate freely to procure electricity from the supplier offering the most favourable conditions. A spot market for electricity was set up in June 2000 to enable short-term power purchasing transactions.

#### **Coordination group for the wholesale market**

Another new body that was created by way of the 2001 General Electricity Act is Organismo Coordinador, a coordination group with the main task of harmonising the operations of the various power producers and network operators with each other on the wholesale market and ensuring that the necessary capacity is made available on the spot market. This institution serves to promote the market's self-regulating capacities. It is not a state body. Its highest authority is a coordinating committee, the members of which include one representative each from the independent power providers, the power producers with private participation, and the transmission and distribution sectors.

### Ministry of Industry & Commerce

The Ministry of Industry & Commerce (Secretaría de Estado de Industria y Comercio – SEIC) deals with the energy policy guidelines and establishes the general framework conditions for the energy sector. Decree no. 146-2000 placed the Non-conventional Energy Programme (Programa de Energía no Convencional) under the auspices of SEIC for the purpose of promoting research & development projects concerning the exploitation of renewable energy sources.

### Water management

The Instituto Nacional de Recursos Hidráulicos (INDHRI) is responsible for water resource management. This institute also issues licences for the use of water as a source of energy and attends to its harmonisation with other forms of use, especially with regard to agricultural irrigation.

## 5.3 Legal Framework

### Unbundling and privatisation

Law 141-97 on the reform of public enterprises<sup>13</sup>, which was adopted in June 1997, initiated the unbundling and partial privatisation of the erstwhile state-owned power utility, CDE. The generation, transmission and distribution of electricity were separated from each other in 1998. All constituents of the company, with the exception of the transmission lines and the hydro-electric plants, were put up for privatisation and valued to be worth a total of US\$ 642 million. Private companies were allowed to acquire 50% capital interests and to take over operational management of the plants. Private-sector involvement in the thermal power stations was also accompanied by the obligation to build an additional 100 MW of capacity per year<sup>14</sup> and to bring the plants up to World Bank standards within five years. All economic activities on the part of the government in the electricity sector were assigned to the newly formed CDEEE.

### General Electricity Act of 2001

A General Electricity Act (Ley General de Electricidad, No. 125-01) was passed by parliament and entered into force at the end of July 2001. This law set out the general conditions for further private-sector involvement, gave customers better legal protection vis-à-vis power providers and created a flexible wholesale market for electricity.

In addition to the institutional changes described in the preceding chapter, the key provisions of the new electricity act relate primarily to the following areas, which from today's point of view are often only inadequately met:

- Ensuring that at least 20% of all electricity trading is done on the spot market<sup>15</sup>
- Authorising power generators to install connecting lines to the interconnected grid system and/or to their own customers (self-generators)
- Limiting distribution companies' ownership of generating plants to no more than 15% of the peak load of the grid; renewable energy sources are exempted from this rule
- Regulating electricity tariffs for public-grid customers with a maximum connected load of 2,000 kW (1,400 kW from 2002, 800 kW from 2003 and 200 kW from 2004 onwards), as long as the customers do not enter into direct contracts with the suppliers
- Regulating transit tariffs for the use of transmission and distribution of facilities
- Giving preferential treatment to companies that generate electricity from renewable energy sources with regard to sales and load distribution if prices and conditions are otherwise identical
- Exempting companies that generate electricity from renewable energy sources from national and local taxes for five years
- Creating a national energy commission (Comisión Nacional de Energía – CNE) to develop energy policy measures and long-term planning of the energy sector

<sup>13</sup> Ley General de Reforma de la Empresa Pública (141-97).

<sup>14</sup> Through this addition of 800 MW between 2000 and 2003, the grid reached its peak installed capacity of 3,430 MW. Since then, its capacity has fallen due to shutdowns/decommissioning and contractual problems, and now (July 2006) stands at just 3,086 MW.

<sup>15</sup> In 2005, however, only 8% of trading was handled through this market.

- Strengthening Superintendencia de Electricidad to establish it as an independent, neutral regulatory authority with far-reaching competences
- Investing 10 % of the proceeds from fines imposed for the theft of electricity in an incentive fund for the development of renewable energy sources<sup>16</sup>

#### **Implementation regulation for the General Electricity Act of 2002**

A regulation governing the application of the General Electricity Act (Reglamento para la Aplicación de la Ley General de Electricidad) was adopted as Regulation 555-02, dated 19 July 2002, and modified by Regulation 749-02, dated 19 September 2002. This regulation details the roles played by the various market actors and functioning of the market.

#### **New tariff system**

SIE Resolution 31-2002, dated 17 September 2002, introduced a new tariff system for end consumers and substantially reduced cross-subsidisation. The regulated tariffs comprise a component dictated by energy costs and demand costs, regular adjustments for changes in the cost of fuels, exchange rates and inflation rates, plus a fixed amount for power distribution (Valor Agregado de Distribución), which is redetermined at four-year intervals. During the past few years, the system of tariff categories has been repeatedly altered in order to obtain as effective a system of subsidisation as possible for those in need. To this end, approximately US\$ 160 million from the national budget will be spent in 2006.

## **5.4 Policy Promoting Renewable Energy Sources**

At the end of 2000, with a view to promoting the use of renewable energy sources, the Dominican Government supplemented the preferential arrangements already laid down in the electricity act by passing a law that levies consumption taxes on fossil fuels and petroleum products. Since 2002, 5 % of these tax revenues are being fed into a special fund for the promotion of alternative energy sources and energy conservation programmes.<sup>17</sup> Tax revenues of around US\$ 600 million are expected in 2006, which means some US\$ 30 million will be paid into the fund. During the past two years (2004 and 2005), however, 55 % of the money reserved for this fund in the government's budget were reassigned to the general revenues. So far, the remaining funds have not been put to use in a transparent manner, but some funds are known to have gone to research establishments in the form of subsidies, and to have been used to finance 10,000 village PV systems and the free provision of 2 million energy-saving lamps in poor areas of the towns and cities. These funds flow via the Ministry of Industry and Commerce in the period preceding every presidential and parliamentary election.

#### **Law promoting renewable energy sources**

The initial draft version of an incentive law for the development of renewable and "clean" energy sources was submitted to the National Congress for debate in October 2001. With support from the GTZ-project Proyecto de Fomento de Energías Renovables (PROFER), the draft was modified in the period from 2003 to 2006 and resubmitted to the Congress in October 2005 under the altered title Proyecto de Ley de Incentivo al Desarrollo de Fuentes Renovables de Energías. It was submitted to the Senate for its second reading and passed in September 2006. The law was finally signed and came into force in May 2007 by the Dominican President, Leonel Fernández.

<sup>16</sup> To reduce the level of electricity theft, the President introduced a bill to parliament that proposes up to 5 years in prison for the illegal sourcing of electricity.

<sup>17</sup> Fondo de Interés Nacional, for which the Ministry of Industry and Commerce is responsible.

The law promotes wind farms with a capacity of up to 50 MW, mini hydropower plants of up to 5 MW, PV installations of all sizes, concentrating solar thermal power stations of up to 120 MW, biomass power stations with an organic fuel input of at least 60% and an output of max. 80 MW, and ocean power plants (wave, tidal power plants, etc.).

Preferential arrangements in line with the Spanish system of annually fixed bonuses on top of the respective market price are also envisaged for feeding into the public power grid. Moreover, a quota of 10% (2015) and 25% (2025), respectively, is being set for the amount of electricity from renewable energy sources.

Furthermore, approval has been given for customs and tax exemptions for imported components to be employed in installations used to generate and use renewable supplies of energy, and for a fiscal incentive of up to 75% of investment costs for self-generators.

In addition to power generation from renewable sources, this law also promotes all types and sizes of plant for producing biofuels, as well as cultivation areas and agricultural infrastructures for producing renewable raw materials to be used for power generation, by providing extensive tax relief and exemption over a period of 10 years. Admixtures of E15 and B2 are to be offered. These regulations are aimed first and foremost at the domestic sugar industry, which is equipping itself to produce bioethanol, but the introduction of biodiesel based on 'home-grown' oil plants and the import of bio-fuel are also not being ruled out.

Finally, the law also promotes technologies for solar thermal heat generation and refrigeration.

All this is being financed by the fiscal charges placed on hydrocarbons in 2000, amounting to around US\$ 30 million per annum, charges that are however also supposed to finance measures for saving energy. As a general rule, public, private, public-private, municipal and other applicants count as potential recipients of promotion funds.

### GTZ project since 2003

GTZ provided SEIC and CNE with assistance for their projects promoting the use of renewable energy sources between March 2003 and February 2007.<sup>18</sup> The focal areas in this connection were the provision of advice and guidance for the shaping of legal and regulatory framework conditions and for managing the fund for renewable energy, the electrification of rural communities with micro hydropower plants, and the promotion of PPP approaches to the exploitation of renewable energy sources. Starting in May 2005, the cultivation and use of oil-bearing plants in arid zones to generate energy was investigated and assessed in cooperation with a regional project for reducing poverty in the borderland to Haiti.

### Clean Development Mechanism

The Dominican Republic ratified the UNFCCC in October 1998 and acceded to the Kyoto Protocol in February 2002. An initial national report on climate protection was submitted in June 2003. In August 2004 the Oficina Nacional del Mecanismo de desarrollo Limpio (ONMDL) was established by presidential decree. This is the Designated National Authority (DNA), as envisaged in the Kyoto Protocol for utilising the relevant mechanisms.<sup>19</sup> Clean Development Mechanism projects have already been proposed; the Guanillo wind farm operated by Parques Eólicos del Caribe (a subsidiary of Gamesa of Spain), with a planned capacity of 64.4 MW, is the first CDM measure to have been successfully registered (December 2006).<sup>20</sup> Agreements have been reached with the World Bank, the Prototype Carbon Fund, Canada and Spain on the purchase of certified emissions reduction credits (CERs).

18 Proyecto Fomento de las Energías Renovables en la República Dominicana – PROFER.

19 Decree no. 786-04: Decreto presidencial que crea la oficina nacional de Cambio Climático y Mecanismo de Desarrollo Limpio.

20 <http://cdm.unfccc.int/Projects/DB/AENOR1153378528.03/view.html>

## 5.5 Status of Renewable Energy Sources

Until now, the use of renewable energy sources for public electricity generation in the Dominican Republic has been limited to hydropower. Nothing has as yet been undertaken to develop existing potentials with respect to wind power, solar energy and biomass, but activity in these fields is expected once the planned law on renewable energy sources has been enacted and come into force.

### Hydropower

Despite extensive exploitation, the Dominican Republic still has untapped hydropower resources. Frequently, power generation is closely linked with reservoirs for drinking water and irrigation, as well as with irrigation channels. In all, the country presently has about 20 hydropower plants in the medium-output range from 3 to 100 MW in operation, with a total capacity of 468 MW. At present there are seven other power plants with a total capacity of 167 MW under construction, with a further seven with a combined output of 189 MW in the planning phase.

### Mini-hydropower potential – international involvement

In the early 1980s, with Taiwanese assistance (Sinotec Engineering Consultants, Inc., Taipei), the erstwhile hydropower divisions at CDE and INDRHI identified an extensive portfolio of possible mini-hydropower plants ( $\geq 100$  kW) with grid connection potential and since developed them to the point that they are now ready for implementation. This engendered a total of 25 projects with capacities ranging from 370 kW to 4,000 kW and a total capacity of 30 MW, only two of which were implemented by 1986.

UNDP-GEF provided financial and technical assistance for basic studies into 18 mini- and micro-hydropower plants<sup>21</sup> with ratings of 1.5 kW to 250 kW for supplying electricity to remote communities, and some of these studies are now being further pursued and backed by UNDP and GTZ.<sup>22</sup>

All in all, only half a dozen mini-hydropower plants with capacities totalling roughly 1 MW are presently in operation. Additionally, there are roughly 15 pico-hydropower plants with ratings of less than 1 kW in service.

According to a presidential decree dated 8 December 2000 (No. 1277-0), the private sector is authorised to engage in the licensed use of hydropower resources yielding 1 MW or less. Conversely, this also means that all hydroelectric plants larger than this count as being of relevance to the national interest and therefore may only be operated by the responsible state-owned power utility, EGEHID.

### Wind energy

The country's substantial wind resources have so far gone unutilised. The U.S. National Renewable Energy Laboratory (NREL) performed an initial assessment of the wind energy potentials that could serve as a point of departure for major wind-power projects. The main goal of the study was to map the wind resources in all regions of the Dominican Republic and to compile the results in a wind atlas.<sup>23</sup>

The analysis showed the best wind conditions to be situated in the extreme south-west (in the provinces of Pedernales and Barahona) and north-west (in the provinces of Puerto Plata and Montecristi), and in exposed inland areas at elevated altitudes, where suitable sites could be used for providing non-grid electricity (rural electrification). Additionally, some other coastal regions also enjoy good wind conditions.

All in all, some 1,500 km<sup>2</sup>, or 3 % of the total land area, were identified as having good or very good wind potential (wind speeds of greater than 7 m/s at a height of 30 m). Together, this would suffice for more than 10,000 MW of power generating capacity. Twenty provinces have a potential of at least 100 MW, and three provinces as much as over 1,000 MW each. However, further studies will be necessary in order to more closely investigate the power transmission routes and to determine the extent of accessibility.

21 Micro-hydropower plants are understood as including the relevant generating systems.

22 A study (PROFER Informe No. 13) reports on the experiences gained during the construction and operation of 13 micro-hydropower plants.

23 To consult the wind atlas, go to [www.rsvp.nrel.gov/pdfs/wind\\_atlas\\_dominican\\_republic.pdf](http://www.rsvp.nrel.gov/pdfs/wind_atlas_dominican_republic.pdf).

If the locations with wind conditions that are moderate but sufficient for the purposes of rural electrification are included, the potential even rises beyond 30,000 MW, or 60 TWh per annum. In that case, there are 12 provinces with a wind potential of at least 1,000 MW each.

### Plans for wind farms

For some time now implementation plans for large-scale wind-power projects have been available, but none of the 10 projects (with a total capacity of 750 MW) for which the SIE has issued either a partial or a full licence<sup>24</sup> since 2001 has been implemented to date. The wind farm project in Cabo Engaño (Samaná), which is being carried out by the power provider Consorcio Energético Punta Cana (CEPM),<sup>25</sup> is nearing completion. This 8.5-MW project has already been licensed for generating electricity. It is being financed by the World Bank (IFC). The same enterprise also has plans to install a wind farm with up to 100 MW in Juancho in the province of Pedernales, and another one in Matanzas in Peravia province. SIE has already issued power-generating licences to Unión Fenosa for its 100-MW wind farms and to Parques Eólicos del Caribe (a subsidiary of Gamesa of Spain, 90 MW)<sup>26</sup> in 2001. This company's 64.4-MW project at Guanillo in Montecristi is registered as a CDM project. However, it has so far not been possible to keep to any schedule for constructing the plants, because until now all the investors have been waiting for the legislation to promote wind power and the corresponding regulations to be enacted.

### Biomass

The main source of energy from biomass utilisation is bagasse, or cane waste from sugar production, which is already in use for generating heat and electricity in sugar factories. However, most of the facilities are outdated, frequently yielding no more than 20 kWh per tonne of ground bagasse, so no electricity is left over for feeding into the public grid. Increasing plant efficiency to an economically viable level by means of adapting the steam regime would yield up to 100 kWh/t, which would mean that 80 kWh could be fed into the grid. Based on an annual sugar cane production rate of 6 million tonnes, it would be possible to generate between 470 and 575 GWh of electricity per year in modern combined heat and power stations in the sugar industry. This would correspond to roughly 5% of the Dominican Republic's current power generation rate. The level to which the feeding of electricity generated from renewable energy sources has been promoted until now has been insufficient to enable the power producers to realise reasonable and attractive remuneration. The new promotion legislation, however, prioritises the feeding of such electricity into the public grid and contains bonuses on top of the purchase price.

There are also expectations regarding the production of ethanol from sugar as a substitute for fossil fuel. An envisaged admixture of 5% bioethanol to petroleum necessitates the cultivation of approximately 3 million tonnes of additional sugar cane. At the end of 2006, a Dominican-Swedish-British consortium<sup>27</sup> will begin converting two state-owned sugar refineries (Consuelo and Boca Chica) so they will be capable of producing 15 million litres of ethanol. An initial investment of US\$ 70 million is planned. Further investments to the tune of US\$ 200 million are also planned, to expand ethanol production in order to supply the US market among others.

24 Partial licences primarily permit the conducting of wind measurements, while full licences cover actual operation.

25 Endesa, Spain's biggest power provider and wind-farm operator, holds shares in CEPM, a private-sector enterprise that primarily provides electricity for the tourism infrastructure in Punta Cana.

26 This Guanillo wind farm, with a capacity of 64 MW, is the first CDM measure to have been successfully registered.

27 Ethanol Dominicana in cooperation with Tall Oil (Sweden), Booker Tate (UK) and Resource Energy Group (USA).

Further organic materials for use in generating power include in particular agricultural residues, most notably for producing biogas from banana trees and from the husks and leaves of rice. Biogas could also be obtained from cattle farming as well as from urban wastes, which contain a large percentage of organic material. The Institute for Innovation in Biology and Industry<sup>28</sup> is currently supporting several biogas projects being conducted in the arable and cattle farming sectors.

Other materials with high energy potential include such oleiferous produce as coconuts and peanuts, the cultivation and marketing of which have drastically declined over the past 20 years due to the availability of cheaper imported oils. The rising prices for imports of mineral-oil products since 2005 have revived discussion concerning domestic biodiesel production: a large number of small-scale enterprises are involved in converting used vegetable oils – primarily from the food industry and hotel trade – into biodiesel. The planting of large castor-oil-plant plantations is being promoted by Brazil, while the cultivation of jatropha is being investigated particularly in poor rural areas; from early 2007 it will be grown in an area of several hundred hectares in the east of the country with financial backing coming from the European Commission and Spain.

### Solar energy

According to the available meteorological data for 1970 to 1972, mean daily solar irradiation in the Dominican Republic is between 4,9 and 5,9 kwh/m<sup>2</sup>. As such, the conditions for the harnessing of solar energy are favourable.

### Photovoltaics

The total number of PV modules now in use for the electrification of remote rural areas has been estimated at more than 23,000 units. In the past, most of the systems were installed on the basis of funds provided by non-governmental organisations and financial assistance from USAID, UNDP and other international donors.

In 2000, the programme for non-conventional energy sponsored by the Ministry of Industry and Commerce (SEIC) put some 600 PV systems into service for rural schools and health centres, military and police facilities, drinking-water chlorination systems, computer-science laboratories, observation posts in national parks and rural homes. In 2004, another 1,800 small PV systems were installed in rural households, with financing provided by the Promotion Fund for National Interests. The same fund has, since November 2005, been backing the installation of a further 10,000 PV systems in the seven provinces on the border with Haiti.<sup>29</sup>

### Solar thermal energy

The climatic conditions are ideal for exploiting solar power to heat water. Due to the fact that water is heated for the most part using very expensive electricity, especially in households (in households with a consumption of more than 700 kWh: 21 US cents/kWh), conventional thermosiphon (natural convection) systems pay for themselves very quickly in just 2 to 4 years. Nevertheless, the spread of such systems – estimated at around 15,000 units – is low. The SEIC therefore conducted prequalification of local suppliers of thermosiphon systems in August 2005 as part of its national programme to promote energy efficiency and saving. With support from GTZ's Renewable Energy Sources project for the Dominican Republic PROFER, the market potential in the household sector alone was estimated to be 80,000 systems, and a programme to greatly increase the dissemination of these systems was drawn up. The country's central bank, the Banco de Reservas, is to provide suitable financial instruments for this purpose. Further cost reductions for the users result from the new renewable energy promotion law, which includes tax incentives with deductions of up to 75% of the investments.<sup>30</sup>

### Geothermal energy

The Dominican Republic has no geothermal potential for power generation.

28 Instituto de Innovación en Biotecnología e Industria.

29 The main supplier of these systems is Tecsol, a subsidiary of the Spanish company Isophoton. Isophoton announced in December 2006 that it intends building a thermal solar collector factory costing US\$100 mill. in the industrial region of Haina, which it will later expand to incorporate a production line for PV modules, turning the plant into an overall investment worth US\$900 mill. (source: Listín Diario).

30 Self-generators can take advantage of subsidies worth up to 75% of the investment costs (by offsetting against their income tax liability).

## 5.6 Rural Electrification

It is assumed that some 350,000 of the total of 2.3 million households across the country, most of them in rural areas, still have no access to the national power grid. Most of these households have to get by without any electricity at all.

### CDEEE Department of Rural Electrification

Following the establishment of the special department for rural electrification within CDEEE (Unidad de Electrificación Rural y Suburbana), gradual elimination of the still considerable deficits with respect to the supply of all households with electricity is expected. The associated tasks are to be financed in part from the regular revenues of the privatised distribution companies and generating plants. Twenty percent of the total resources from the relevant fund (Fondo Patrimonial) are earmarked for this purpose.

### National electrification plan

May 2004 saw commencement of the implementation of a national rural electrification plan (Plan Nacional de Electrificación Rural – PER). The plan was drawn up by the rural electrification department at CDEEE with the technical assistance of NRECA and financial assistance from USAID. In addition to expanding the existing grid, the plan also explores the potentials of renewable-energy technologies for application in off-grid regions, including the relevant financing. The electrification plan is intended to help bring grid electricity to 95 % of the rural population by 2020. By the end of 2006, around US\$ 35 million had been invested to connect a good 88,000 households to the grid. With support from USAID (NRECA), a further US\$ 6 million will be invested in the near future, 66 % of this figure to be borne by CDEEE. In future, greater emphasis will be placed on the utilisation of micro-hydropower plants and photovoltaics than has been the case until now.

### Rural electrification projects involving renewable energy sources

In the past, the non-governmental organisations REGAE, NRECA and Fondo Pro Naturaleza (PRONATURA) have implemented a number of projects in the field of renewable energy sources and rural electrification<sup>31</sup>, all in close cooperation with rural regional development programmes and village cooperatives. Most of the financing for those programmes came from GEF (small projects fund) and USAID.

Exchange rate (18 December 2006):

100 Dominican peso (DOP) = 2.42 euro (EUR)

31 Solar home systems and small wind power systems for the basic electrification of rural households and community facilities, and micro-hydropower systems for decentralised village power supplies.

## 5.7 Information Sources

- CDEEE – Corporación Dominicana De Empresas Eléctricas Estatales:  
Plan De Expansión 2006-2012, Empresa De Generación Hidroeléctrica Dominicana (EGEHID)
- CDEEE – Corporación Dominicana De Empresas Eléctricas Estatales:  
Comité de Recuperación del Sector, Plan de Acción para la Recuperación del Sector Eléctrico, Santo Domingo, 8/2006
- CNE – Comisión Nacional De Energía:  
Proyecto De Ley De Incentivo Al Desarrollo De Fuentes Renovables de Energías Y Sus Regimenes Especiales, 10/2006
- EDENORTE Dominicana:  
Seminario Sobre El Sector Eléctrico, 8 Y 9 De Septiembre De 2006, Juan Dolio, Rep. Dominicana
- EDESUR:  
Seminario Plan De Acción Para El Sector Eléctrico Dominicano, Plan De Negocios De Edesur Dominicana S.A. 8 Y 9 de Septiembre de 2006, Juan Dolio, Rep. Dominicana
- Elliott, D., Schwartz, M., George, R., Haymes, S., Heimiller, D. & Scott, G.:  
Wind Energy Resource Atlas of the Dominican Republic, National Renewable Energy Laboratory (NREL), Golden, Colorado, 10/2001
- Empresa De Transmisión Eléctrica Dominicana:  
Plan De Expansión Del Sistema De Transmisión 2006-2012, 9/2006
- Energy Information Administration (Department of Energy, USA):  
Caribbean Fact Sheet, 6/2003
- Listín Diario.com.do:  
www.listin.com.do; various reports
- Modificación al Reglamento para la Aplicación de la Ley General de Electricidad, Decreto del Poder Ejecutivo No. 749-02 del 19 de Septiembre 2002
- OC – Organismo Coordinador del Sistema Eléctrico Interconectado de la República Dominicana:  
Programa De Operación De Mediano Plazo, 10/2006-9/2007
- OC:  
Informe Mensual De Transacciones Económicas, 8/2006
- OC:  
Memoria Anual y Estadísticas de Operación 2005
- OC:  
Estadísticas, www.oc.org.do
- PROFER:  
Informe No. 7, Estudio básico sobre potenciales, proyectos y actores en el área de energías renovables en la República Dominicana, Santo Domingo, 12/2003
- PROFER:  
Informe No. 8, Aspectos económicos de Calentadores Solares en el sector residencial en la República Dominicana, Santo Domingo, 4/2004
- PROFER:  
Informe No. 12, Calentadores Termosolares en la República Dominicana: Mercado y Beneficios, Santo Domingo, 10/2006
- PROFER:  
Informe No. 13, Micro Centrales Hidroeléctricas para la Electrificación Rural: La Experiencia en la República Dominicana, Santo Domingo, 12/2006
- Reglamento para la Aplicación de la Ley General de Electricidad, Decreto del Poder Ejecutivo No. 555-02 del 19 de julio 2002

- **Secretariado Técnico De La Presidencia:**  
Unidad De Análisis Económico,  
Monitor Energético, 7/2006
- **Secretaria de Estado de Medio Ambiente y Recursos Naturales:**  
Primera Comunicación Nacional ante la Convención Marco de las Naciones Unidas sobre Cambio Climático, 2003
- **Superintendencia de Electricidad:**  
Ley General de Electricidad, No. 125-01, República Dominicana, 7/2001
- **Superintendencia de Electricidad:**  
Proyección de la Demanda de Energía y Potencia y Balance de Energía, Informe final, 25 Marzo 2003
- **Superintendencia de Electricidad:**  
Resolución SIE-64-2006
- **Secretaria de Estado de Industria y Comercio:**  
Republica Dominicana, Informaciones Suministradas Por La Dirección de Energía No Convencional, 11/2006
- **USAID:**  
Estrategia de Eficiencia Energética para La República Dominicana, 11/2004

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There is great potential for generating electricity from renewable energy sources in many developing and emerging countries. Obstacles to the exploitation of such sources and to the involvement of foreign investors include a lack of knowledge of framework conditions in the energy industry and insufficient transparency with regard to the prior experience and interests of national actors. This fourth, updated and expanded edition is aimed at overcoming barriers such as these.

The electricity markets and their respective actors are investigated for 23 countries in various regions: Latin America, Africa - Middle East and Asia. The country studies analyse the energy-policy framework conditions and closely examine the status of and promotion policy for electricity generation on the basis of hydropower, wind power, solar power, biomass and geothermal energy. The chapters on each country are rounded off by information about rural electrification.

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