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# THE ENERGY REGULATION AND MARKETS REVIEW

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SECOND EDITION

EDITOR  
DAVID L SCHWARTZ

LAW BUSINESS RESEARCH

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# THE ENERGY REGULATION AND MARKETS REVIEW

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Second Edition

Editor  
DAVID L SCHWARTZ

LAW BUSINESS RESEARCH LTD

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# EDITOR'S PREFACE

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During our second year of writing and publishing *The Energy Regulation and Markets Review*, we have seen a profound change in global energy regulation and markets.

From a supply perspective, oil and gas exploration, development and production in certain regions (including North America and in certain African countries) have increased dramatically. In the wake of the Fukushima disaster, many countries have slowed or abandoned their nuclear development programmes, and some have accelerated the retirement of nuclear units. Certain countries have also witnessed extensive retirements of coal-fired generation facilities due to greenhouse gas considerations, increases in coal price relative to the price of natural gas, and flat or decreased demand. Certain renewable subsidies, such as feed-in tariffs and renewable energy credits, as well as utility requirements through renewable portfolio standards to encourage renewable development, have slowed as a result of the continuing financial crisis in Europe.

From a demand perspective, the financial crisis has flattened or reduced demand in some countries. Efforts to encourage conservation and energy efficiency have also had a downward impact on demand. Austerity concerns, however, have slowed down these energy efficiency and conservation subsidies in 2012.

From a reliability perspective, certain countries that experienced widespread outages (such as Korea and India) prioritised grid hardening and reliability measures. Safe and reliable delivery of electricity and natural gas continues to be the hallmark of energy policy and regulation in the industrialised world, as it has been for the past 75 years.

Certain developing countries continue to struggle with mechanisms to encourage infrastructure investment to meet demand, while others face long-standing corruption and other inefficiencies in their energy sectors. Some countries seek to maintain government ownership over utilities, while others seek a combination of public and private involvement to encourage foreign investment.

Countries with active energy markets have sought to balance the desire to maintain low electricity rates for ratepayers with sufficient price signals to encourage new infrastructure investment in generation and transmission. Many markets have developed competitive bid-based electricity auctions to set energy prices, which sometimes include

the cost of transmission congestion. A few countries have successfully developed robust capacity markets.

These energy and capacity markets tend to be administered by independent or governmental entities that do not have a market position bias. Clearing prices set in these markets are intended to send price signals to maximise short-term decision-making (including for scheduling and dispatching) as well as long-term planning (development of new and upgrading of existing generation and transmission, as well as retirement of facilities that are either no longer needed or are no longer capable of earning sufficient revenue to meet future variable costs).

Cybersecurity threats are exposing the vulnerabilities of our energy networks, and the global economy continues to threaten our ability to obtain the necessary credit to build and finance energy infrastructure.

I would like to thank all of the authors for their thoughtful consideration of these difficult challenges. We look forward to identifying some possible mechanisms to resolve the many dilemmas discussed in these chapters.

**David L Schwartz**

Latham & Watkins LLP

Washington, DC

May 2013

## Chapter 1

---

# ANGOLA

*Catarina Levy Osório and Helena Prata*<sup>1</sup>

### I OVERVIEW

Angola's energy industries are characterised by strong public activity, with state companies acting throughout the value chain of the oil, natural gas and electricity industries.

Despite the prominent public presence in the energy industry, the country is progressively widening entry to private players, creating the necessary mechanisms to allow private companies to take part in the industry's activities alongside and in close cooperation with the respective public companies.

The electricity industry is the one that requires the most significant investment, undergoing transformation and expansion plans that amount to US\$13 billion, between 2009 and 2025, in order to meet growing demand.

In accordance with the measures set out by the Policy and Strategy for the National Energetic Security,<sup>2</sup> the Angolan government is committed to reforming the energy industry. With this intention, among other measures, in the electricity industry the government is mainly focusing on:

- a* restructuring public companies;
- b* developing a strategic and regulatory framework for renewable energies;
- c* reinforcing powers of the Regulatory Institute of the Electrical Sector ('the IRSE'),
- d* revising the legal framework for the electricity sector;
- e* defining an attractive model for private investment and development of its legal framework; and
- f* progressively eliminating electricity price subsidies.

---

1 Catarina Levy Osório and Helena Prata are partners with Angola Legal Circle Advogados.

2 Put into force by Presidential Decree No. 256/11 of 29 September.

In the oil and natural gas industry, the focus is on:

- a* ensuring the 'Angolanisation' of upstream activities by defining a plan for upgrading Sonangol's management and integration capacities on deep-water projects;
- b* implementing the liberalisation of the market and creating a new legal and regulatory framework;
- c* enacting a natural gas regulatory framework;
- d* reinforcing existing refining capacity;
- e* finishing short-term projects such as pipelines and railways; and
- f* defining a new tariff model and removing fuel price subsidies.

The Angolan electricity system is divided in two separate segments:

- a* the Public Electricity System ('the PES'), which encompasses the Electricity National Transmission Network ('the NTN')<sup>3</sup> and all generation and distribution infrastructures tied to the NTN; and
- b* the Non-Tied Electricity System ('the NTES'), which encompasses non-tied producers, self-producers and non-tied customers (together referred as 'non-tied agents').

The commercial relations between the aforementioned agents is governed by the General Electricity Law<sup>4</sup> and the Commercial Relationships Regulation.<sup>5</sup>

The producers tied to the PES are public service concessionaires or licence holders who have the obligation to sell electricity to the NTN concessionaire. Under its capacity as a 'single buyer', the NTN concessionaire is required to acquire all power generated by tied producers. In order to do so, tied producers and the NTN concessionaire must enter into power purchase agreements ('PPAs'), which set out the terms and conditions of their commercial relations.

Subsequently, the NTN concessionaire (in which the Angolan state must have a majority equity participation or a veto right) must sell the electricity acquired under the PPAs to the high-voltage ('HV') distribution network operators, at a single price, including those who operate in isolated systems.

In turn, HV<sup>6</sup> distributors sell electricity to medium-voltage ('MV') distributors who then these sell electricity to low-voltage ('LV') distributors, who in turn sell the electric power to the customers, therefore acting as suppliers.

Without prejudice to the necessities of the PES, the non-tied agents are committed to the role of strengthening the competitive regime on the supply and consumer markets of the Angolan electric system. Hence, non-tied producers and customers are entitled to establish bilateral agreements, freely negotiated between the parties, governing the terms

---

3 Mainly composed by ultra high-voltage networks, which operate at a voltage greater than 60kV.

4 Put into force by Law No. 14-A/96 of 31 May.

5 Put into force by the Presidential Decree No. 2/11 of 5 January.

6 The HV networks operate at a voltage between 35kV and 60kV, the MV networks between 35kV and 1kV and the LV networks below 1vV.

and conditions of the supply of electricity. Nonetheless, the terms and conditions of such agreements must comply with the Regulation for the Licensing and Security of Electric Facilities and the Networks Access Regulation, as well as the rules and procedures put into force by the IRSE. If, at any given moment, the non-tied producers wish to sell their electricity to the PES, they will need to enter into generation concession agreements or request the attribution of a power generation licences, under the terms of the Electricity General Law.

The commercial relationships established under the regime of the PES are therefore regulated, with contractual terms and sale prices administratively set, as opposed to relations with non-tied agents, whose contractual terms and prices can be freely established by the parties. It should be noted that any tied customer who wishes to migrate to the non-tied electric system is allowed to do so.

## II REGULATION

### i The regulators

The IRSE, created by Decree No. 4/02 of 12 March, is the Angolan regulatory authority in the electricity sector, a public institute with management, administrative and financial independence, responsible for regulating the activities of generation, transmission, distribution and sale of electricity in the PES.

The IRSE is, *inter alia*, in charge of regulating the business relationship between agents included in the PES and between the PES and non-tied agents, and the specification of tariffs and of revenue transfer models between different players in the electricity industry, as well as the performance of duties related to national arbitration and the composition of interests of different stakeholders of the industry.

### ii Regulated activities

#### *Exploration and production of oil and gas*

The exploration and production activities of oil and natural gas in Angola is governed by Law No. 10/04 of 12 November.

The right to produce and explore oil or natural gas is granted by concession agreement, generally preceded by a public tender procedure.<sup>7</sup>

The concession for exploration and production, after the public tender procedure, is granted by concession decree, issued by the Angolan government, attributing to the national concessionaire Sonangol<sup>8</sup> the right to develop a specific oil concession.

All successful companies who wish to explore and produce oil or natural gas in Angola have to form an association with Sonangol in one of three possible ways: incorporation of a joint company; a consortium agreement or a production-sharing

---

7 Decree No. 48/04 of 1 September governs the Rules and Procedures for Public Tenders in the Oil Sector

8 Sociedade Nacional de Combustíveis de Angola, EP, the exclusive concessionaire for mining rights in Angola.

agreement. The concession agreement must subsequently be signed by the parties within 30 days of the publication of the concession decree.

Companies who wish to undertake preliminary exploration and prospection works may do so by applying to the Ministry responsible for the oil exploration and production matters for the attribution of a prospection licence. After hearing the national concessionaire, the said Minister decides on the request and attributes the licence by Executive Decree.

### *Construction of electric facilities*

The construction of electric facilities<sup>9</sup> is subject to the licensing procedures prescribed in Decree No. 41/04 of 2 July, the Regulation for the Licensing and Security of Electric Facilities.

Under this Regulation, any entity interested in developing new electric facilities is required to obtain an establishment licence (which grants the authorisation for the construction of the facility) and, subsequently, an exploration licence, which grants the necessary authorisation to start operating the facility.

The request for these licences is made to the licensing entity (which is the competent entity, within the Ministry responsible for the energy sector,<sup>10</sup> to conduct the licensing process), enclosing the respective project and all other elements necessary to understand the project as a whole.

The licensing entity may impose any modifications it deems essential to ensure the safety of the population and assets as well as complying with the applicable security regulations. In certain situations, the project may be subject to various consultation procedures, namely with affected populations or official departments in charge of activities that are affected by the project in question.

After all the foregoing formalities are successfully concluded, an establishment licence is granted after the payment of the fee, allowing the commencement of construction. Usually, the project developer is obliged to finish the construction works within two years of the establishment licence being granted, although this may be extended depending on the circumstances.

Following the completion of the construction works, the project developer should request an inspection to ensure compliance of the facility with all applicable rules. If it complies, the exploration licence is granted (no later than 15 days after the inspection) and the facility may enter into operation.

In certain cases – mostly construction of small facilities that do not interfere with public domain terrains or assets – there may be an exemption from obtaining the establishment licence, or both the establishment and exploration licences.

---

9 Meaning generation, transmission or distribution facilities.

10 At the present, the Ministry of Energy and Water.

### *Authorisation to develop generation, transmission or distribution activities*

The authorisation to develop generation, transmission or distribution activities is granted through concession agreements,<sup>11</sup> entered into with the Angolan government, or through licences granted by the local authority, depending on the circumstances.

### *Concession agreements*

The attribution of concession agreements is made after a public tender procedure and the concession has a maximum of 50 years, determined on a case-by-case basis. At request of the concessionaire, the concession agreement may be renewed, if such renovation is of public interest. At the term of the concession agreement, all assets that integrate the concession shall become property of the state.

### *Licences*

Licences regulate the activities of public supply to isolated localities (not included in the concession areas) of self-generation and of private supply. Licences are attributed by the local authorities within their jurisdiction areas, authorising the generation, transmission and distribution under a public service regime. Licences are attributed for each facility and any entity may hold several licences, regardless of its category or nature.

### *Generation*

As previously noted, the right to develop generation activities is granted either by concession agreement or the attribution of a generation licence, depending on the circumstances, without prejudice to the obtainment of the foregoing establishment and exploration licences.

The producers tied to the PES hold concession agreements or licences for power generation and must comply with public service obligations. Thus, the electric power generated by the tied producers is earmarked to supply the PES. As compensation for such obligation, these producers are entitled to receive a fair price<sup>12</sup> for the sale of the electric power they generate, established in the PPAs entered into with the NTN concessionaire.

Alternatively, non-tied producers hold a concession agreements or licences for the generation of electric power, but are exempt from public service obligations, and therefore free to dispose their electric power by entering into bilateral agreements, with terms and conditions set by the parties.

The integration of new generation plants by tied producers into the PES depends upon the generation needs of the country, provided in the Electric System Expansion Director Plan, in accordance with the National Energetic Plan. If the generation plant

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11 The concession agreements are signed and approved by the Council of Ministers. Although the law grants the Council of Ministers the power to approve the concession agreements, considering the governmental structure established by the Constitution of 2010, the Council of Ministers ceased to develop executive functions, thus becoming a mere advisory body. As such, given the concentration of executive powers operated in 2010, it is presumed that such competence now rests with the holder of the executive power.

12 Considering an adequate return on the investment made.

uses public domain water resources, the project developer must also obtain the correct authorisation for the use of public domain resources.

The attribution of the right to explore a generation plant via concession agreement is made through a public tender process.

The contractual position on a concession agreement may be assigned to third parties, but it is subject to the IRSE's opinion and dependent upon authorisation by the Ministers' Council.

Licences for the development of generation activities are granted by local authorities to entities who ensure supply to isolated localities, whose power needs are equal or under 1MW, as well as to those who generate power under an self-generation or private supply regime and that provide power to the PES (and therefore need to obtain a generation licence). Such licences are valid for a minimum of 15 years.

In order to obtain a generation licence, a request must be submitted to the local authority, who shall request the opinion of the Energy and Water Ministry. In turn, the Energy and Water Ministry must request the opinion of several official bodies that may be involved or affected by the project. These opinions must be submitted to the local authorities within a maximum of 90 days.<sup>13</sup> Upon reception of such opinions, within 60 days, the local authority must attribute a provisional generation licence, and project developer then has 180 days in which to obtain the establishment licence from the Energy and Water Ministry.

### *Distribution*

Similarly to generation of electric power, distribution activities are authorised via concession agreements, entered into with the state, or a licence, granted by local authorities.

In general terms, the authorisation to operate HV and MV distribution networks is granted via concession agreements and distribution in LV networks is authorised by licence attribution.<sup>14</sup>

### **iii Ownership and market access restrictions**

#### *Oil and gas*

As previously mentioned, companies who wish to develop exploration and production activities must do so in association with the Sonangol in one of three ways: incorporation of a joint company, consortium agreement or production sharing agreement. Only commercial companies may become associates of Sonangol, and if such association is made via incorporation of a joint company, or via consortium agreement, Sonangol is legally required to hold an equity participation greater than 50 per cent.<sup>15</sup>

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13 Or 120 days, in case of a hydropower generation unit.

14 Except for localities with more than 50.000 inhabitants or networks with a maximum peak power required by the system equal or greater than 4MW, in which cases the right is attributed via concession agreement, under the terms of Article 5 of the Electric Power Distribution Regulation (Decree No. 45/01 of July 13).

15 In duly justified situations, the government may authorise Sonangol to hold a smaller equity participation.

### *Electricity*

Concessions and licences for generation, transmission and distribution activities may only be granted to legal persons, of private or public nature, and the development of new electric facilities is dependent upon the attribution of the aforementioned establishment and exploration licences.

Companies who develop generation, transmission or distribution activities authorised by licence are allowed to hold several licences, regardless of their category or nature. Consequently, there are no impediments to the development of such activities by vertically integrated companies.

The Angolan state is legally required to hold a majority equity participation in the share capital of the concessionaire of the NTN, or a veto right.

#### **iv Transfers of control and assignments**

##### *Oil and gas*

The assignment of a contractual position in the exploration and production concession agreement requires the prior authorisation of the Minister responsible for the exploration and production of oil matters, provided that the transferee is of proven competence, and technical and financial capability, unless the assignment is made between subsidiary companies of the transferor.

In the event such assignment is authorised, Sonangol has a right of pre-emption. If Sonangol does not exercise this right, Angolan companies that are party to other concession agreements at the time of the transfer are entitled to exercise such pre-emption right.

### *Electricity*

Subject to prior authorisation by the Ministers' Council, concessionaires for generation, transmission or distribution activities may assign, sell or encumber their contractual positions to third parties. Licensees may also transfer their licences to third parties, provided that the licensing entity agrees to such transfer and the requirements that determined its attribution are fulfilled at the time of the transfer.

## **III TRANSMISSION/TRANSPORTATION AND DISTRIBUTION SERVICES**

#### **i Vertical integration and unbundling**

As previously noted, the energy industry in Angola is strongly dominated by the presence of public companies.

##### *Oil and gas*

In the oil and gas industries Sonangol is party to every exploration and production agreement made with foreign companies, being responsible for the technical management of such agreements in order to maximise both the state and the company's interests.

Sonangol Group, through its multiple subsidiaries, operates as a vertically integrated company that has its main activities concentrated in all phases of the oil chain of business. Its activities include exploration, production, development, marketing,

transportation and refining of hydrocarbons and its derivatives. Those activities can be performed independently or in association with other companies, national or foreign.

The exploration, evaluation and development of natural gas reserves are the responsibility of Sonagas, a subsidiary of Sonangol Group. Sonagas create joint ventures with partners with financial capability, expertise and willingness to contribute to the development of the natural gas industry in Angola.

In 2007, an agreement was made to develop the Angola LNG Project,<sup>16</sup> where Sonagas is a partner. Angola LNG operates one of the world's most advanced liquefied natural gas ('LNG') processing facilities in Soyo, in Zaire province, under a consortium of companies which includes Sonangol (22.8 per cent), and subsidiaries of Chevron (36.4 per cent), Total (13.6 per cent), BP (13.6 per cent), and ENI (13.6 per cent).

### *Electricity*

In the electricity industry, the main public players are ENE EP,<sup>17</sup> the state-owned power company responsible for generation, transmission and distribution of electricity in Angola's three main grids and a number of isolated systems, operating in 15 of Angola's 18 provinces; and EDEL EP,<sup>18</sup> the state-owned power distributor in Luanda, accounting for 70 per cent of the country's electric power consumption.

Access to electricity is an essential feature to fuelling economic growth and one that has been missing in Angola. Bearing this in mind, the government and ENE are combining their efforts to improve and expand the country's power grid.

In the Policy and Strategy for the National Energetic Security, the government has approved an ambitious reform plan for the electricity sector, which foresees provision of access to electricity for between 50 and 60 per cent of the population by 2025.<sup>19</sup> As part of the reform, the government plans to reorganise the public companies within the sector, separating out the public companies' monopoly and establishing the following organisation:

- a* a public company exclusively dedicated to the management of generation assets, resulting from the merger of ENE and GAMEK;
- b* a public company dedicated to the transmission of electricity in ultra-high and HV networks and to the management of the national electricity system; and
- c* a public company dedicated to the distribution of electricity, resulting from the merger of the distribution assets of ENE EP, EDEL EP and the municipalities.

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16 More information about this project can be found at [www.angolalng.com/project/default.htm](http://www.angolalng.com/project/default.htm).

17 Empresa Nacional de Electricidade de Angola, incorporated by Decree No. 29/98 of 4 September. Being the national power company, ENE EP is a fully vertically integrated electricity company.

18 Empresa de Distribuição de Eletricidade, incorporated by Decree No. 33/99 of 11 November. EDEL, EP's main attributions are the distribution and supply of electricity, although being authorised to develop electricity generation activities. More information at [www.edel.co.ao](http://www.edel.co.ao).

19 Today, only around 30 per cent of the Angolan population has access to electricity.

This restructuring model accommodates the creation of a national holding company, owning the aforementioned three companies.

The government estimates that the execution of the restructuring programme for the electricity industry in Angola will require an investment of US\$13 billion by 2025. Consequently, the electricity sector will gradually open up to competition, and private investors will be welcomed.

## ii Transmission/transportation and distribution access

### *Oil and gas*

Under the Law for the Transport and Storage of Oil and Natural Gas,<sup>20</sup> operators of oil and gas pipelines have an exclusive right to explore these infrastructures.

The operators are prohibited from adopting discriminatory behaviour, unless such discrimination is justified due to technical conditions.

### *Electricity*

Concession agreements and the licences attribute to the concessionaires or the licensees the exclusive right to explore and operate the transmission and distribution networks.

Under the Networks Access Regulation, the NTN concessionaire and the tied distribution operators of HV and MV networks are obliged to provide equal access conditions to third parties.

The Networks Access Regulation acknowledges the network access rights of:

- a entities who are tied to the PES and hold concession agreements or licence authorisation to generate electric power under the terms of the Electric Power Generation Regulation;
- b entities who are not tied to the PES and hold a concession agreement or a licence to generate electric power;
- c tied customers under the terms of the Electric Power Supply Regulation;
- d non-tied customers recognised as such under the Commercial Relations Regulation; and
- e self-producers or producers for private supply who intend to exercise their right of providing electric power through access to PES networks, as well as the entities who are supplied by these.

The commercial relations regarding networks access are governed by written agreements, valid for a period of one year, and its general terms are approved by the IRSE.

According to the Commercial Relations Regulation, the NTN concessionaire is responsible for operating and maintaining the NTN, managing the national electric system and acting as a commercial agent.<sup>21</sup> Also, the commercial relations between non-tied agents and the PES are centralised in the NTN concessionaire.

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20 Enacted by Law No. 26/12 of 22 August.

21 The commercial agent is the part of the NTN concessionaire that ensures supply and the optimisation of the PES, managing the PPAs with tied producers and distributors, among other duties.

For the purpose of avoiding discriminatory behaviours and ensuring transparency, the NTN concessionaire must separate, in terms of organisation and accounting, the three aforementioned activities.

### iii Terminalling, processing and treatment

Angola has great potential for natural gas production, with proven reserves of 270,000 million cubic metres (with some estimates indicating resources of over 1.2 billion cubic metres), and intends to develop this industry aiming for the exportation markets.

Investment, however, has been limited (the main investment in the industry is the Angola LNG project),<sup>22</sup> mainly due to great legal and regulatory uncertainty.<sup>23</sup> In accordance, Presidential Decree No. 256/11 of 29 September sets the development of such legal and regulatory framework of these activities as a primary goal for the strategic orientation of the oil and natural gas industries.

Recent developments have been made with the publication in 2012 of the Law for the Transport and Storage of Oil and Natural Gas. It is a first step, but the natural gas industry is in great need of regulatory progress that attributes certainty and clarity to the development of activities such as terminalling, processing and treatment of natural gas, as well as access conditions by third parties to LNG facilities.

### iv Rates

Rates for transmission and distribution of electricity are established in accordance with the Tariffs Regulation,<sup>24</sup> put into force by the IRSE. Rates are uniform for the entire country, the application of different tariffs being prohibited for customers in the same tariff category. The IRSE sets the maximum tariffs and hence the maximum prices for the provision of transmission or distribution services.

Tariffs are based upon the provider's costs plus a reasonable rate of return, resulting in the allowed revenues of the network operators. The rate of return of the transmission and distribution companies is calculated using the weighted average capital cost/capital asset pricing model (WACC/CAPM) methodology.

The calculation of the allowed revenues of NTN transmission concessionaires includes:

- a* efficient investment costs;
- b* efficient operation and maintenance costs;
- c* other costs necessary to efficiently develop the transmission activity; and
- d* a fair rate of return over the investments.

Investments made on network expansion projects are remunerated in accordance with the aforementioned methodology.

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22 More information available at [www.angolalng.com](http://www.angolalng.com).

23 An example is the fact that there is yet no concession model specific to natural gas exploration and production.

24 Presidential Decree No. 4/11 of 6 January.

For distribution services, remuneration is set through a distinction between the rate of return of the distributor's activity, via the HV, MV and LV networks, and the rate of return of the investment costs and the costs for the connection of consumers' facilities to the grid. The first is called the aggregated value of standard distribution ('AVSD') while the second is called the connection fee.

The AVSD is set for a certain number of standard distribution areas, distinguished by several variables such as consumption per unit area, consumption per capita, number of consumers per unit area or the facilities' age, which justify differences on the efficient costs of the distribution activity.

The AVSD is composed of operational costs, calculated in respect of a reference company for each standard distribution area, and a fair rate of return on efficient investments. Operational costs should consider, *inter alia*, commercial, distribution, administrative and financial, and management activities.

The unitary cost of investment in the distribution network is calculated from the annuity of the capital cost corresponding to the new value of replacement of the existing network. The annuity is calculated considering a useful lifetime of the distribution facilities of 30 years.

#### v Security and technology restrictions

The NTN concessionaire, in its capacity as system operator and manager, is responsible for ensuring the continuous and safe operation of the NES. As such, it is responsible for constantly evaluating the security level of the grid and declaring, in extreme situations, a 'situation of absolute shortage of power'. The NTN concessionaire is also tasked with the responsibility of elaborating a security plan, establishing the necessary preventive measures to avoid incidents that may disrupt the provision of electric power to customers.

Under Article 6 of the Electricity General Law, concessionaires or licensees of generation, transmission or distribution activities must ensure, at their own expense, that their facilities are protected against sabotage or acts of war.

In a state of emergency, the state assumes the responsibility for the supply of electricity to the PES. In addition, in these situations the state may tie independent producers to the PES, without prejudice to the right of compensation of the affected entities.

## IV ENERGY MARKETS

### i Contracts for sale of energy

As previously mentioned, only non-tied agents use a market-based approach. Accordingly, the Commercial Relations Regulation allows the establishment of physical bilateral agreements for the sale and purchase of electric power, with their terms and conditions freely defined by the parties.

These agreements may be for long or short-term periods, short-term meaning less than one year.

## **V RENEWABLE ENERGY AND CONSERVATION**

### **i Development of renewable energy**

The Angolan government considers renewable energies to be a key element in the development of the country's electric system, particularly in rural areas. The country has high potential in terms of renewable resources, mainly in terms of hydro and solar power. Solar power will play an important role in providing electricity to rural areas, while large hydropower projects are intended to be connected to the NTN supplying the PES. The country is also undertaking a wind power study to ascertain the potential of this energy source.

The electric power industry in Angola is urgently in need of major financial investment in the area of power generation. As a result, Angola is now seeking to create attractive conditions for private investors to participate in the development of the electric power industry.

In order to ensure attractive remuneration to private investors (without compromising the cost-efficiency for the government and customers) the government is taking into account the utilisation of PPAs as a privileged instrument to capture investment into new large-scale generation units (over 10MW), and as a mechanism that guarantees an adequate return on the investment made and ensuring its long-term amortisation.

In addition, Angola is ever-more inclined towards establishing public-private partnerships ('PPPs') with interested investors, allowing public companies to improve their skills and expertise, and favouring the creation of long-lasting commercial relationships with such investors.

For smaller projects, the use of feed-in tariffs will be the main mechanism of remuneration for generation capacity in isolated systems (under 10MW).

### **ii Technological developments**

The Angolan authorities foresee that the construction of first wind farm in Angola will begin by the end of 2013. Located in the municipality of Tômbwa, this will be developed under a PPP regime and will add 100MW to the country's installed capacity.

ZTE Corporation, a Chinese company, will provide smart meter solutions to EDEL EP, the distribution network operator in Luanda, including equipment, construction, personnel training and, operations and maintenance.

This project is intended to solve difficulties such as bill arrears, inefficient manual meter reading and electricity theft, and to improve EDEL's management efficiency, while reducing its operation and maintenance costs.

## **VI THE YEAR IN REVIEW**

2012 began with one of the world's most promising oil discoveries, a major deep-water oil find by Cobalt International Energy.

The development of the 'pre-salt' oil in Angola has generated great interest among the industry's major players. By the end of 2011 some of the world's biggest oil companies – including BP, Statoil, Total, Repsol, Eni and ConocoPhillips – established

rights to 11 offshore blocks close to Cobalt's discovery. These offshore blocks lie in the Kwanza basin, which many believe has a similar profile to that of the Santos and Campos basins in Brazil, where two of the biggest oil finds have been made in recent decades: the Tupi and Libra fields. Cobalt's offshore discovery, and another discovery by Maersk Oil, led analysts to quadruple their estimates of the onshore areas' potential, although some experts say it too soon to draw such conclusions.

Nonetheless, the pre-salt layer in Angola and its deep-water oil fields are generating exciting prospects for the country's oil industry, and many players in the sector have paid an extraordinarily high signing bonus to secure the respective exploration rights. Angola, now the second-largest oil producer in Africa, may at some point come to rival Nigeria as Africa's top producer.

After winning the elections held on 31 August 2012, the Popular Movement for the Liberation of Angola was re-elected and José Eduardo dos Santos was assured of another term. As such, it is expected that Angola's course of action will remain the same it has adopted during recent years.

## **VII CONCLUSIONS AND OUTLOOK**

Angola is struggling to rebuild its infrastructure, and rise from the wreckage of its civil war. Since 2002, it has managed to increase generation capacity, improve operational capability and progressively rehabilitate and maintain the country's electric power grids. Nonetheless, productive ability is still unable to sustain existing demand and the service is generally unreliable. Poor access and unpredictable power is also a consequence of the fragmented nature of Angola's power system. The three main Angolan grids – the north, south and central systems – are not interconnected (which would free excess power from the north to the central and south systems).

The electricity tariffs structure also needs revising. The current tariffs structure does not allow the public companies to cover their costs and finance the necessary investments, but subsidies need to start being cut from supply prices.

The problem is exacerbated by the high level of commercial losses due to the inefficiency of the transmission and distribution networks, unbilled consumption or fraudulent connections, which lead to serious financial constraints from these companies.

In this context, Angola has committed to reform the legal framework for energy-related activities and restructuring of the companies in these industries, welcoming new private players that may provide valuable expertise, along with new financial stimulus.

The country has all the conditions to create a sustainable and prosperous energy industry. Its economy is steadily growing and the country is rich in natural resources. Now, it needs to create attractive conditions for new investors, and a business environment that inspires trust and security in its players.

## Appendix 1

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# ABOUT THE AUTHORS

### **CATARINA LEVY OSÓRIO**

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Catarina Levy Osório is a partner with ALC Advogados. She previously worked at another law firm as a consultant in the tax department and as a senior tax consultant of a major international consulting firm.

Ms Osório is a consultant of Morais Leitão, Galvão Teles, Soares da Silva in all matters pertaining to Angola. She is a member of the Angolan and Portuguese Bar Associations, has relevant experience in Angolan law, having advised clients on private investment, tax and labour law in that jurisdiction.

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Helena Prata is a partner with ALC Advogados, with expertise ranging from advisory to complex corporate and asset financing and restructuring transactions, incorporation of SPV and structured security arrangements and labour law. Highly experienced in corporate law, environment, oil and gas she has accompanied national and international clients in these areas.

She is the author of several articles published in specialised Angolan magazines and also teaches business law at the Law Faculty of the Agostinho Neto University. Ms Prata was recently elected a member of Luanda's Provincial Council from the Angolan Bar Association.

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