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Togo Energy Sector Policy Review

Review of the Electricity Sub-Sector



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TOGO – REVIEW OF THE ELECTRICITY SUB-SECTOR

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EXCHANGE RATE : 1US\$ = FCFA500

ABBREVIATIONS AND ACRONYMS

AFD	France Development Agency (<i>Agence Francaise de Developpement</i>)	IPP	Independent Power Producer
AfDB	African Development Bank	ISN	Interim Strategy Note
ARREC	ECOWAS Regional Electricity Regulatory Commission	LPG	Liquefied Petroleum Gas
ARSE	Electricity Sub-Sector Regulatory Authority (<i>Autorité de Réglementation du Secteur de l'Electricité</i>)	LV	Low voltage
BOAD	West Africa Development Bank (<i>Banque Ouest Africaine de Développement</i>)	MME	Ministère des Mines et de l'Energie
CEB	<i>Communauté Electrique du Benin</i>	MV	Medium Voltage
CEET	<i>Compagnie d'Energie Electrique du Togo</i>	OPIC	Overseas Private Investment Corporation
ECOWAS	Economic Community of West Africa	PPP	Public Private Partnership
ESW	Economic Sector Work	PV	Photovoltaic
EU	European Union	SBEE	<i>Société Béninoise d'Energie Electrique</i>
GDP	Gross Domestic Product	SIE	Energy Information System (<i>Système d'Information Energétique</i>)
GOT	Government of Togo	TEP	Ton Equivalent Pétrole
HDI	Human Development Index	WAPP	West Africa Power Pool
IDA	International Development Association	WAEMU /UEMOA	West African Economic and Monetary Union (Union Economique et Monétaire Ouest Africain)
IFC	International Finance Corporation		

TOGO-REVIEW OF THE ELECTRICITY SUB-SECTOR

EXECUTIVE SUMMARY

A. Introduction

1. **Main Objective of the Electricity Sub-Sector Review.** The main objective of this sector work (ESW) is to provide the World Bank and the Government of Togo with a sound basis and proposals for decision-making about the main electricity sub-sector issues facing the country. The ESW therefore assesses the key challenges facing the sub-sector and provides information, analysis and recommendations regarding: (i) the overall energy policy and strategy framework; (ii) the institutional and regulatory framework including the necessary reforms within the context of Togo's regional undertakings; (iii) the electricity demand and supply balance including access to electricity services; (iv) electricity tariffing; (v) the investment program and the financing requirements; and (vi) the utility's financial situation and the sub-sector financial outlook. The review also summarizes recommendations addressing the key issues facing Togo's electricity sub-sector.

2. **Country Background.** The Republic of Togo is a small state of 57,000 km² in West Africa bordered by Ghana to the west, Benin to the east, Burkina-Faso to the north and the Atlantic ocean to the south (*see map 1*). The 2010 population was 6.2 million growing at 2.8 percent per year, and the 2011 per capita Gross Domestic Product (GDP) was US\$440 that grew at an average of 2.7 percent per year over the 2008-2009 period. Economic growth started to recover in 2009, 2010 and 2011 (3.2 percent, 4.0 percent, and 4.1 percent respectively) thanks to a strong performance of the sectors of clinker (23 percent of Togo's exports), metals (20 percent of exports) and phosphates (19 percent of exports) and renewed political stability. About 60 percent of Togo's population lives in rural areas, where access to basic services such as health, education, drinking water and electricity is lacking. Indeed, 74.3 percent of the rural population lives in poverty. The urban population is also widely affected by poverty. Togo is ranked 162 out of 187 countries in the United Nations' Human Development Index list (HDI)¹. The decade of the 1990s and the first half of the 2000s were marked by political and social tensions that considerably weakened Togo's economic and development progress. The 2007 parliamentary elections, deemed free and transparent, paved the way for donors' reengagement.

3. To recover from the period of poor economic management, structural reforms are being pursued including reforms in the key economic sectors: cotton sector, phosphate sector (including the approval of Togo's EITI candidacy status in

¹ United Nations Human Development Index (HDI), at the UN Human Development Report 2009.

October 2010), telecommunications (a new sector policy was adopted in May 2011 while a new telecommunications law, transposing WAEMU directives into national law, was discussed by the national assembly in January 2012), the electricity sub-sector where generating capacity was expanded with a 100MW power generation plant own and operated by a private investor Contour Global, a Board of Directors was established for the electricity utility company, CEET, new statutes harmonized with WAEMU corporate law were adopted, a five-year contract between CEET and the government was signed, a tariff adjustment was decided in 2010, and arrears to the private sector were cleared and in the financial sector three ailing state-owned banks were recapitalized.

4. **The World Bank Program.** The World Bank Group re-engaged with Togo in May 2008 when arrears to the International Development Association (IDA) were cleared. The Country Partnership Strategy is aligned with the PRSP pillars². Rehabilitation of critical economic and social infrastructure will continue to be a priority for the country.

B. Togo Electricity Sub-Sector Key Data

5. Togo's key 2011 data on the electricity sub-sector are provided in the following table ES1:

Table ES1: Key Electricity Sub-Sector Data

Data	Togo (2011)
Peak Demand (MW)	135
Electricity Purchased or Produced by CEET (GWh)	849
... of which purchased from CEB	770 (91%)
... of which Contour Global IPP	67 (8%)
Number of Clients (000)	204
Overall Access Rate to Electricity Services	25.6%
.. Urban	30%
.. Rural	5%
Total Losses (Technical and Commercial)	24%
Collection Performance	86%
Unserved Energy (% of delivered Energy)	70 gWh estimated (12% of 2009 delivered energy)
CEET Turnover (billion FCFA/million US\$)	GFCFA95.5 MUS\$191
CEET Electricity Sales (billion FCFA/million US\$)	GFCFA80.1 MUS\$160.2
Average Tariff (FCFA/US\$/MWH)	FCFA 117/kWh (US\$23/MWH)
CEET's Net Operating Profit (billion fcfa/million US\$)	GFCFA2.4 MUS\$4.8
Government transfers (billion FCFA/million US\$)	GFCFA3.0 MUS\$6
Cash Recovery Index (CRI)	65

1 US\$ = 500FCFA

Source: CEET 2011 Annual Report

² The PRSP will expire in 2012, and a new PRSP is under preparation.

C. Main issues and Recommendations for the Electricity Sub-Sector

6. The recommended priority areas for actions in Togo's electricity sub-sector have the following objectives:

- a. Improving the quantity and quality of the electricity services provided to the population and the economy;
- b. Ensuring the short-term and medium-term financial viability of the electricity sub-sector;
- c. Mobilizing financing for investment, including private sector financing;
- d. Upgrading the regulatory framework; and
- e. Informing and communicating on sub-sector issues and on the Government program.

7. For the Executive Summary, the report's recommendations have been summarized and grouped into two levels of priority as indicated below. Background information and the rationale for the recommendations are provided in the report's Chapters I to VIII.

8. **Priority 1 recommendations** are considered as the areas where the Government and the operators need to concentrate first. They focus on increasing the quantity and the quality of electricity available for Togo's economy and its population through investments in generation, transmission, in increasing the access to electricity services in urban and rural areas, on ensuring the short and long-term financial equilibrium of the sub-sector, and on mobilizing private sector financing in order to implement the investment program.

9. **Priority 2 recommendations** focus on completing the development of the energy sector policy and strategy, updating the sector regulatory framework, increasing the autonomy and role of ARSE, and increasing the role of renewable energies (hydros in particular).

10. **Informing and Communicating.** The Ministry of Mines and Energy of Togo has rightly inserted information and communication as an integral part of its activities. As decisions on tariffs in particular are made and enacted, the information and communication effort should be strengthened including an increased participation of CEET and by supporting the activities of the Energy Information System (SIE).

Priority 1 Recommendations

11. ***Increasing the supply and the quality.*** As Togo's demand for electricity services continues to grow quickly and availability of current imports from Nigeria and Ghana likely decrease, Togo will need to secure between 20 to 25 MW of additional capacity per year in the base case scenario (possibly 30-35 MW if economic growth picks up). Some of the prospective projects (domestic, regional projects and imports) will require a long development period with risks of further delays and costs overruns. It is therefore critical that the Government:

- a. through the Ministry responsible for energy: (i) develops a long term perspective in the form of a generation and transmission master plan, built up together with CEB and WAPP, and also develops a short term/medium term plan most likely to be based on domestic thermal generation; and (ii) closely monitor their implementation;
- b. mobilize CEET, CEB and the Donors community to ensure that the Adjarala's hydroelectric project is commissioned at the latest by 2018 and within estimated costs; and
- c. works with the Governments of Nigeria, Ghana and Benin to ensure that adequate quantities of natural gas from the West African Gas Pipeline project (WAGP) are delivered as soon as possible to the power plants.

12. ***Increasing access to electricity services.*** Togo's access to electricity services is relatively low in peri-urban and urban areas (30 percent) and very low in rural areas (5 percent). Two access programs aiming both at improving the quantity and the quality of the services should therefore be developed and presented for financing: One for the urban and peri-urban areas within CEET's concession perimeter, and a second one for rural areas outside CEET's perimeter.

- a. The objective of the first access program would be to improve the quality of service through rehabilitation and strengthening of the distribution networks in urban and peri-urban areas, extending connections to new customers, and connecting isolated centers to CEET's grid – currently relying on expensive isolated diesels -; and
- b. The objective of the second access program – the Rural Electrification program – would be to increase access to electricity services in rural areas through innovative off-grid service delivery and financing mechanisms. Togo's should benefit from the experience of neighboring countries when selecting the institutional set-up, the service providers, and the implementation and financing mechanisms required for sustaining an increased services in the rural areas.

13. **Ensuring the sub-sector financial equilibrium and controlling costs.** Because of the likely further increase in the costs of domestic thermal generation and of electricity imports, their linkages with the international of fossil fuels and the relatively weak financial performance of CEET, Togo needs to review its electricity tariff policy. The tariff policy also needs to be addressed as this will impact on Togo's ability to mobilize financing (including private sector financing for generation) and potentially on the budget. The Government should therefore quickly:

- a. request that CEET and the bi-national utility (CEB), and the sub-sector regulatory entity (ARSE) jointly carry-out an in-depth cost-of-service study and a financial analysis and develop or update the financial modeling tools supported by a generation and transmission investment master plan, to delineate the revenue requirements and the financial and cash-flows gaps; and
- b. adopt a clear electricity tariff policy and tariff setting principles to establish and adjust tariffs.

14. **Mobilizing financing from the private sector.** Private sector financing will likely provide the bulk of the financing required for expanding thermal generation capacity. This would require in particular that the existing PPP framework be upgraded with the paramount objective of speeding-up the process of investors selection including the provision of sample contracts, tariff setting and adjustments rules. The enhanced PPP framework should also cover renewable energy and rural electrification.

Priority 2 Recommendations

15. **Completing the energy sector policy and strategy.** A new sector policy and strategy has been prepared and is expected to be submitted shortly to the Cabinet. However, this new policy does not address some key policy aspects such as: (i) energy tariffing; (ii) the Public Private Partnership (PPP) framework; and (iii) the financing of rural electrification. Policy proposals on these aspects should be included in the new sector policy.

16. **Updating the sub-sector regulatory framework** to: (i) modify the exclusivity granted to the bi-national entity CEB regarding access to the Benin-Togo transmission system; (ii) align it with Togo's regional ECOWAS and WAEMU undertakings, in particular with respect to open and fair access to the regional transmission system managed by CEB; and (iii) lay out the guiding principles to establish the transmission tariff on CEB network.

17. **Increasing the role of renewable energies and in particular of hydros.** In addition to relatively large hydro prospects (such as Adjarala - 147 MW) that will be developed on a regional basis by CEB, Togo's is endowed with medium size

hydroelectric sites that were studied at various levels over the last 20 years. These sites can be developed relatively quickly and probably on good financial terms, and should therefore be reassessed at a feasibility level (technical, economic and financial updates) for possible inclusion in the priority investment plan.

18. ***Increasing the autonomy, role and capacity of ARSE.*** The electricity sub-sector regulatory authority (ARSE) is under the direct authority of the Minister of Energy. It has limited autonomy and its capacities need to be strengthened. As Togo's electricity sub-sector expands, new actors enter the sub-sector and agreements are signed with private sector operators, ARSE should be granted more autonomy and its competencies strengthened. In particular its role regarding the adequacy of the tariff policy and levels, the oversight of the implementation of the agreements signed with the operators, including of CEET's performance contract, should be increased.

CHAPTER I - INTRODUCTION

1. This chapter I presents some information about Togo's socio-economic and political background, the main objectives of this Review of the Electricity sub-sector, the main sources of information, information about the country's broader energy situation, Togo's energy policy and strategy, the main issues facing the energy sector, and proposes some recommendations.

A. Socio-Economic Background

2. The Republic of Togo is a small state of 57,000 km² in West Africa bordered by Ghana to the west, Benin to the east, Burkina-Faso to the north and the Atlantic ocean to the south (*see map 1*). The 2010 population was 6.2 million growing at 2.8 percent per year, and the 2011 per capita Gross Domestic Product (GDP) was US\$440 that grew at an average of 2.7 percent per year over the 2008-2009 period. Economic growth started to recover in 2009, 2010 and 2011 (3.2 percent, 4.0 percent, and 4.1 percent respectively) thanks to a strong performance of the clinker (23 percent of Togo's exports), metals (20 percent of exports) and phosphates (19 percent of exports) sectors and political stability.

3. About 60 percent of Togo's population lives in rural areas, where access to basic services such as health, education, drinking water and electricity is lacking. Indeed, 74.3 percent of the rural population lives in poverty. The urban population is also widely affected by poverty. Togo is ranked 159 out of 182 countries in the United Nations' Human Development Index list (HDI)³.

4. The decade of the 1990s and the first half of the 2000s were marked by political and social tensions that considerably weakened and delayed Togo's economic and development achievements. The 2007 parliamentary elections, deemed free and transparent, paved the way for donors' reengagement.

5. Togo will need to confront several constraints to promote economic recovery and reduce poverty. Weak public sector capacity has become the Government's most pressing challenge and is hampering the country's ability to manage the rapidly expanding portfolio of projects funded by the donors, including by the World Bank Group and the private sector. While the private sector's contribution to economic growth is vital, Togo's business climate is poor and skills available on the market are not adapted to the demand. Two decades of underinvestment in infrastructure, notably transport and energy, have led to high production costs and reduced competitiveness. Pursuit of reforms to drive economic growth is critical in key sectors including phosphates, cotton, food crops, expansion of the Togo Free Zone, investment in port infrastructure and improvement of port services, and promotion of legitimate transit and re-export trade. Finally, improved basic social and economic services and promotion of youth employment and gender issues are a Government priority. Togo has however some valuable economic assets upon which to build its economic recovery. It is an important exporter of cotton and also the world's fourth largest producer of phosphate, and has direct access to the sea.

³ United Nations Human Development Index (HDI). UN Human Development Report 2009.

6. To recover from the period of poor economic management, structural reforms are being pursued. Reforms in *the cotton sector* were initiated with a strategic audit of the sector, two financial audits of the former state-owned cotton company, the establishment of a new cotton company, the clearance of the cotton company's arrears to farmers, the introduction of internal controls, the adoption of a cotton price mechanism linking farm gate prices to world market prices and training of farmer leaders towards a better participation within the NSCT board. In the *phosphate sector*, a strategic audit was conducted, followed by the preparation of a three-year-business plan, the adoption of a phosphate sector strategy in 2010, and the approval of Togo's EITI candidacy status in October 2010. In *telecommunications*, a new sector policy was adopted in May 2011 while a new telecommunications law, transposing WAEMU directives into national law, was discussed by the national assembly in January 2012. In *the electricity sub-sector*, generating capacity was expanded with a 100MW power generation plant own and operated by the private investors in Contour Global, a Board of Directors was established for the national electricity utility company, CEET, new statutes harmonized with WAEMU corporate law were adopted, a five-year contract between CEET and the government was signed, and a some tariff adjustment was enacted in 2010. The Government made much progress clearing up arrears to the private sector and in the financial sector three ailing state-owned banks were recapitalized by an exchange of provisioned bad debt for Government securities (CFAF 88.1 billion). These three banks, plus one other state owned bank have subsequently been put up for privatization.

7. The World Bank re-engaged with Togo in May 2008 when arrears to the International Development Association (IDA) were cleared. The World Bank's Board endorsed an Interim Strategy Note (ISN) for fiscal years (FY) 2008 to 2010 and approved a US\$164.3 million Economic Recovery and Governance Grant (ERGG).

8. A new Interim Strategy Note (ISN) was presented to the World Bank Board in January 2012. This ISN updates the 2008 ISN and is based on the Government's first (and extended) PRSP. Informed by the new PRSP, the World Bank intends to prepare a regular Country Partnership Strategy (CPS) at the end of the ISN period, at which time a consultative group will also be organized. Consistent with the PRSP I, the new ISN supports the following objectives of:

- a. deepening economic recovery and promoting sustainable development, through a focus on improving the business and investment climate, increased agriculture productivity and crop output, and improved access to productive infrastructure;
- b. improving economic governance through improved management and restructuring of key public enterprises and banks, improved and transparent public financial management, and enhanced procurement system and external budget controls; and
- c. addressing urgent poverty reduction and social needs through improved access of communities to basic social and local development services,

improved quality of and access to basic education and health services, improved access to social protection services, and improved management of environmental and natural disasters.

9. Two World Bank emergency projects to rehabilitate infrastructure were launched at that time. The activities financed under a LICUS-funded Lomé Infrastructure Rehabilitation and Maintenance Project (US\$1.5 million, approved in FY 2008) were scaled up under an Emergency Infrastructure Rehabilitation and Energy Project approved in June 2009 (US\$25 million) and complemented by the GEF Efficient Lighting Program (US\$1.82 million). In FY2012 the Bank prepared a second Interim Strategy Note (ISN) for Togo, aligned with the pillars of the Poverty Reduction Strategy Paper (PRSP) of November 2009. Rehabilitation of critical social and economic infrastructure will continue to be a priority for the country.

B. Main Objectives of the Togo's Electricity Sub-Sector Review

10. The main objective of this sector work (ESW) is to provide the World Bank and the Government of Togo with a sound information basis and proposals for decision-making regarding the key electricity sub-sector issues facing the country. The ESW therefore assesses the key challenges facing the sub-sector and provides information and analysis on: (i) the institutional and regulatory framework including the necessary reforms within the context of Togo's regional undertakings; (ii) the electricity demand and supply balance including increasing access to electricity services; (iii) the electricity sub-sector financial equilibrium and electricity tariffing; (iv) key drivers of cost of electricity services, revenues and potential for efficiency gains; (v) critical investments needed; and (vi) policy choices available to the Government to improve electricity service delivery and sector efficiency, and achieve and maintain financial viability.

C. Main Sources of Information

11. This report ⁴ is based on the information provided, discussions with officials during the April 10-13, 2012 mission to Lomé, exchanges with World Bank staff, as well as on the recent reports on Togo's Energy sector. Annex 1 provides a list of the most relevant documents.

D. Togo's Energy Balance

12. In 2008, Togo's used 1650 KTEP. As indicated in figure 1 biomass (wood and charcoal primarily) provided 71 percent of the final energy, refined petroleum products 26 percent and electricity only 3 percent⁵. This is equivalent to a consumption of 0.40 TEP/habitant(ha) (2009) compared with 0.45 TEP/ha in West Africa, 0.67 TEP/ha in Sub-Saharan Africa and a world average of 1.80 TEP/ha. (Figure 2). Over the 2000-2008 period, final energy consumption grew at 3.4 percent/year, with electricity consumption growing rapidly at about 8–8.5

⁴ The report has been prepared in April – June 2012 by Michel Layec, Lead Energy Consultant.

⁵ The Energy Information System (SIE). The urban population represents 34% of Togo's population and consumes 94% of the electricity available in the country.

percent/year. In 2008, households used 67 percent of the final energy, transport 22 percent, commercial activities 9 percent, and industry 2 percent (Figure 3).

Figure 1: Togo's Energy Balance

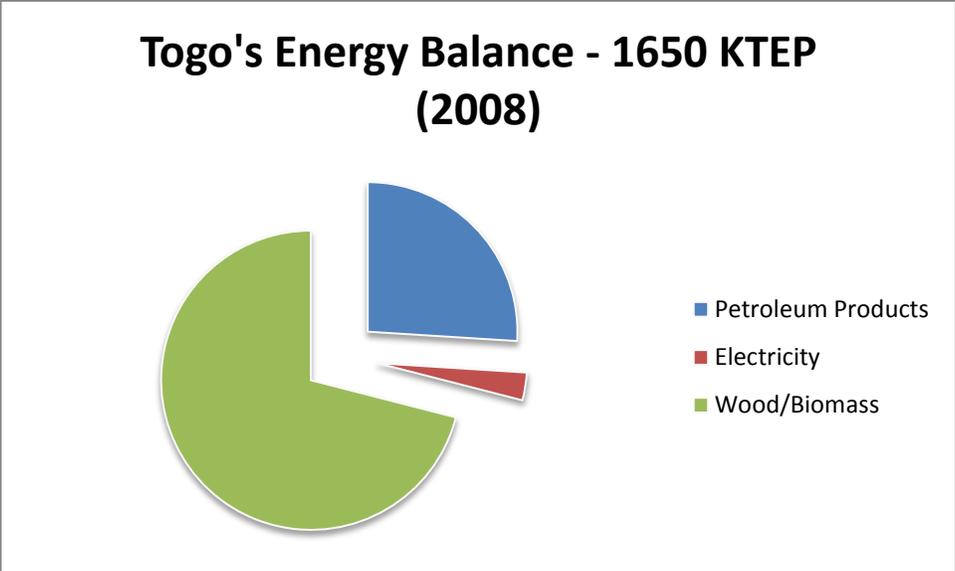


Figure 2: Energy Consumption per Habitant

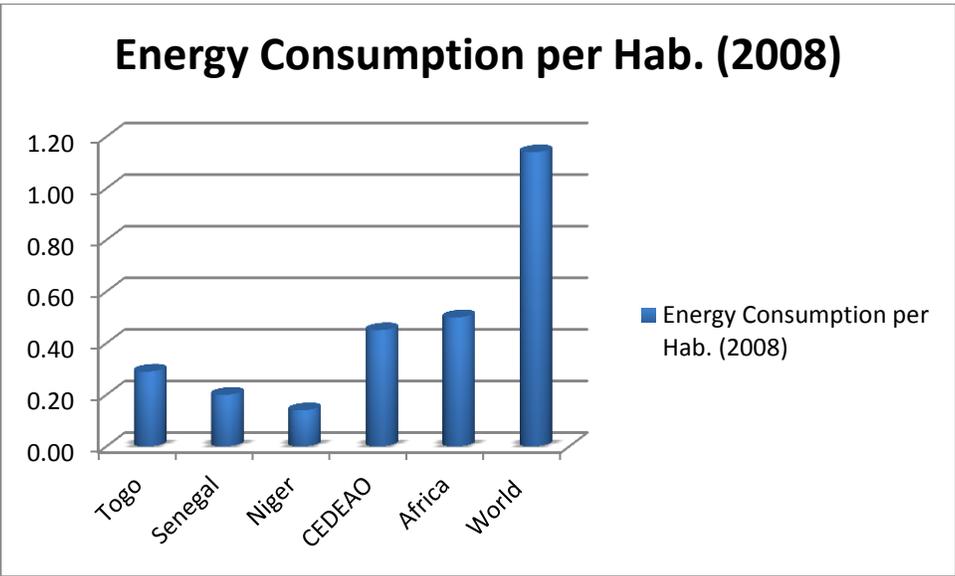
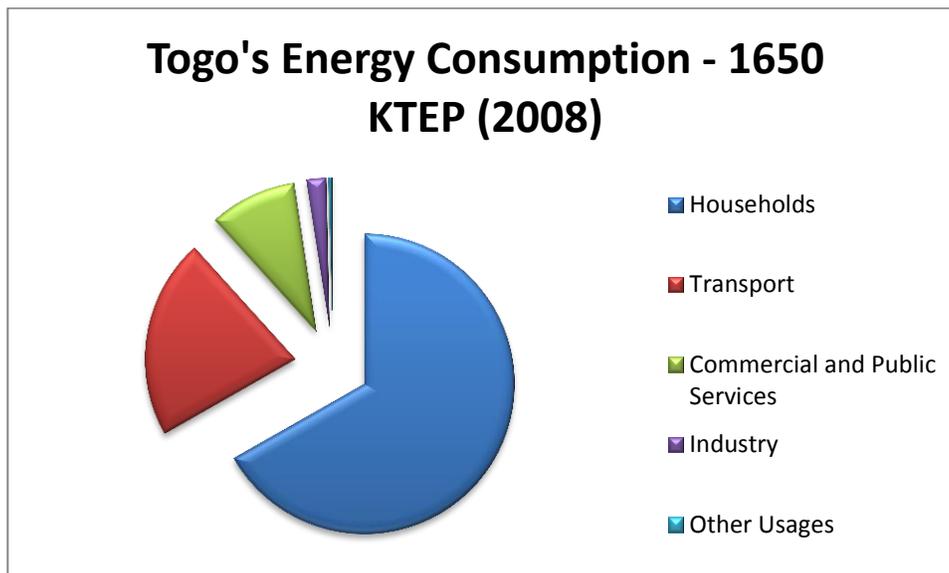


Figure 3: Togo's Energy Consumption by Sector



13. Looking forward, it is expected that the share of biomass in Togo's energy balance will decrease and that the share of commercial energies (petroleum products, natural gas and electricity) will increase. The energy policy and strategy document, under preparation, estimates that in 2020 biomass will account for 40 percent of energy consumption, petroleum products for 15 percent, natural gas for 7.5 percent, LPG and biofuels 10 percent and electricity for 27.5 percent.

E. Energy Dependency and Security

14. Prior to the commissioning of the Contour Global diesel plant at the end of 2010, 95 percent of Togo's electricity was imported from Nigeria and Ghana through the interconnections of the Benin-Togo utility, CEB. The impact of the interconnections has been proved to be positive for the power sector and the economy of the two countries because of the lower cost of imported electricity compared to national thermal units generation costs. However, the power importation was under stress from time to time because of bad hydrology, unavailability of gas or operation constraints. This dependency and the supply mix should however evolve as Nigeria and Ghana are likely to curtail their exports while Togo's internal demand increases. Another issue is related to the security (reliability) of supply as Togo's development has been and is impacted by frequent disruptions created by issues in the Nigeria and Ghana's power systems at the generation and transmission levels.

F. Energy Policy and Strategy

15. A new draft energy policy and strategy dated 2012 has been developed by the Ministry of Mines and Energy (MME) with the help of consultants⁶, and includes a diagnostic of the current situation and recommendations.

⁶ SOFRECO consultancy.

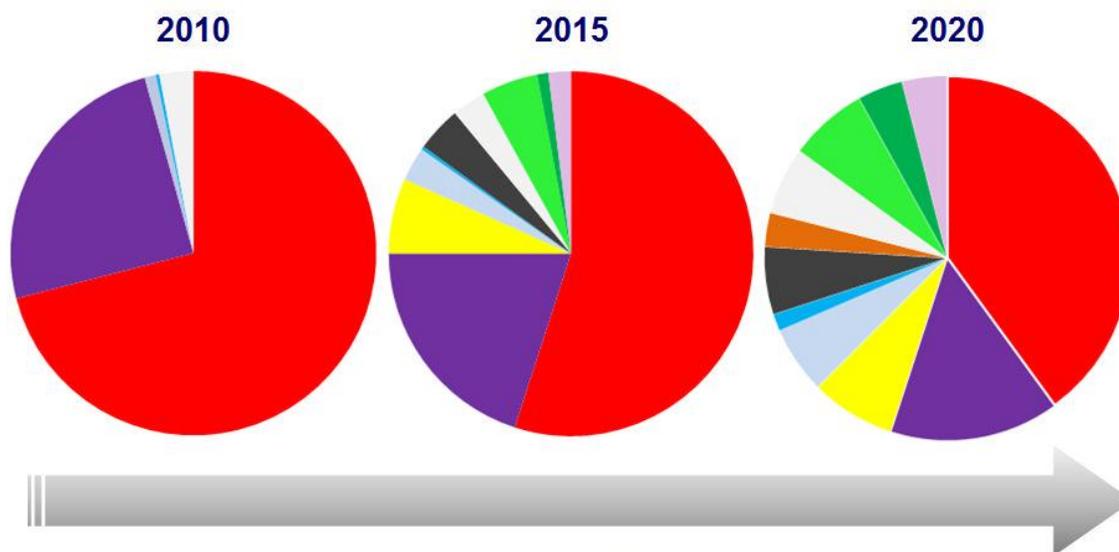
16. The proposed new energy policy calls for:
- a. a diversification of the energy mix with the objective of increasing energy security. This would be obtained by modifying the electricity supply mix, bringing new energies to substitute for imported petroleum products such as natural gas, and by promoting Togo's sedimentary basins (for oil and gas exploration);
 - b. a special emphasis on the energy mix in rural areas, and the development of rural electrification, and of renewable energies;
 - c. an increased participation of the private sector, as the public sector (which had so far been the main financier of the electricity sub-sector) will not be able to finance the increasing requirements for energy infrastructure. This would however require an adequate environment and investment framework for private sector investment (see Chapter III);
 - d. updating the regulatory framework and the implementing regulations;
 - e. strengthening the coordination amongst the various entities (public and private and national, bi-national and regional) involved in Togo's energy sector; and
 - f. ensuring the availability of reliable energy data through continued support to the Energy Information System (SIE – Systeme d'Information sur l'Energie).
17. The above mentioned draft policy document proposes the following energy mix for 2015 and 2020 (see table 1 and figure 3 below).

Table 1: Togo's Evolution of the Structure of the Energy Balance 2010 – 2020

Energy	2010 (%)	2015 (%)	2020 (%)
Biomass	71	55	40
Petroleum Products	24.7	20	15
Natural Gas	0	6.7	7.5
LPG	1	3	6
Electricity Imports	3	3	6
Hydroelectricity	.3	.3	1.5
Coal (residential and power generation)	0	4	9
Renewable Energies	0	6	11
Biofuels	0	2	4
Total	100	100	100

Source: Draft Energy Policy (May 2012)

Figure 4: Togo's Evolution of the Structure of the Energy Balance 2010 – 2020



Expected Evolution of Togo's Energy Mix 2010-2020

Legend: Petroleum: Wood; Hydro; LPG, Natural, Coal; Decentralized; Centralized ; Biogas Electricity Imports
 Products; Biomass; Gas, Renewable Energies; Renewable Energies; Biofuels

Source: SOFRECO: Energy Policy Report

18. It is to be noted however that while the draft energy policy mentions that the financing requirements will be “considerable” and will need to be mobilized domestically and internationally, the draft does not propose avenues to address, in the short-medium term, key sub-sector issues such as: (i) the financial equilibrium of the sub-sector; (ii) energy pricing policy and tariffs; (iii) delivery mechanisms and financing of rural electrification; (iv) upgrading the regulatory framework for the mobilization of private sector financing; (v) adjusting the framework and providing incentives for the development of renewable energies; and (vi) strengthening of the institutional framework.

G. Main Issues and Recommendations

19. With respect to the Energy Policy and Strategy, the following aspects impacting on the electricity sub-sector should be more clearly addressed:

- a. **Electricity sub-sector financial equilibrium.** This is a key issue that if not addressed could render the mobilization of the investment financing more difficult and costly. IPPs in particular would expect the sub-sector to be financially self-sufficient. This would help minimize the level of explicit or implicit guarantees expected from the State.

- b. **Energy pricing policy and tariffs.** The new policy should also clarify the guiding principles and the implementing details regarding energy pricing policy in general, and more specifically the reviews and adjustment of electricity tariffs.
- c. **Delivery mechanisms and financing of Rural Electrification (RE).** As increasing access to electricity services in rural areas is sought, the draft Energy policy should delineate the proposed new approaches and the delivery mechanisms and the RE financing mechanism to account for affordability and sustainability issues.
- d. **Regulatory framework for the mobilization of private sector financing** in the electricity sub-sector as well as for petroleum, and renewable energies. The regulatory framework for public private partnership (PPP) should be enhanced to attract investors, and relevant sample contracts and applicable procurement procedures be made available.
- e. **Framework and incentives for the development of renewable energies,** including Togo's hydroelectric potential. An inventory of Togo's hydroelectric potential was made in 1984 and would need to be updated to optimize design, update costs and financing requirements, determine the level of priority, assess the risks and the mitigation measures required and the appetite of the private sector.
- f. **Mechanism to improve the effectiveness of regional cooperation.** Togo, Benin and CEB together with the Donors should set-up a mechanism to ensure that regional projects, which are complex and with long lead time (such as the Adjarala hydroelectric plant – 147MW), are built on time and within budgets.

CHAPTER II - OVERVIEW OF THE ELECTRICITY SUB-SECTOR

1. This chapter II provides an overview of the key features and of the performance of Togo's Electricity sub-sector, including the policy, regulatory, technical, commercial and financial aspects and the performance of CEET - the Government utility ⁷ responsible for transmission and distribution of electricity within the country - .

A. Overview of the Sub-Sector Institutions and Infrastructure

2. Togo's energy sector activities, and in particular the electricity subsector activities, are supervised by the Ministry of Mines and Energy (MME). The key public and private entities involved in Togo's electricity sub-sector are: (i) the Compagnie d'Énergie Électrique du Togo (CEET) - the Government ⁸ utility responsible for transmission and distribution of electricity within the country. While CEET maintains some generation assets ⁹, it is mainly a distribution company purchasing its electricity from CEB – a binational entity - and from Contour Global – a private generator -; (ii) the electricity sub-sector regulatory agency (ARSE) set-up in 2000 within the MME structure; (iii) the Communauté Électrique du Bénin (CEB), a bi-national entity co-own by Togo and Benin, set up in 1960 to develop power generation and transmission infrastructure for the benefits of Benin and Togo; and (iv) since 2011, Contour Global, an Independent Power Producer (IPP) that commissioned at the end of 2010 (in Lomé) 100MW of diesel units¹⁰ .

3. Togo is also a member of ECOWAS and of WAEMU, a participant in the West African Power Pool (WAPP) and in the West African Gas Pipeline (WAGP) projects and as such made regulatory commitments inter alia on open access to the transmission networks, fair pricing and transparency. More details and an assessment are provided in the following paragraphs and chapters.

4. The electricity infrastructure includes: (i) the generating units of CEET (28 MW operational), of CEB (currently the Nangbeto hydro - 65MW¹¹) and the private Contour Global 100MW diesel plant; (ii) the transmission system composed of the regional interconnections own and managed by CEB and the national system own and managed by CEET; and (iii) the CEET distribution system and the other infrastructure required for CEET's operations.

⁷ The State owns 100% of CEET's shares, and all CEET's Directors are civil servants.

⁸ The private concession to Togo Electricité was cancelled in February 2006

⁹ In 2012, CEET installed generation capacity was 57.8MW, with 20.8 MW operational mainly in secondary urban centers. In 2011, CEET produced only 1.4% of the electricity required (5% in 2010).

¹⁰ In early 2012, Togo signed an agreement with Delta Wind Togo for a 24MW wind farm expected to be commissioned in early 2014.

¹¹ Over the 1987-2008 period, average energy production was 172/gWh/year

B. Key Data

5. Table 2 below summarizes the key parameters of Togo's electricity sub-sector.

Table 2: Togo Electricity Sub-Sector Key Data

Data	Togo (2011)	Comments
Peak Demand (MW)	135	
Electricity Purchased or Produced by CEET (GWh)	849	The Contour Global IPP of 100MW started generating in November 2012
... of which purchased from CEB	770 (91%)	
... of which Contour Global IPP	67.2 (8%)	
Number of Clients (000)	204	Of which 203 300 clients are Low Voltage customers and 524 are Medium Voltage Customers
Overall Access Rate to Electricity Services	25.6%	
.. Urban	30%	
.. Rural	5%	
Total Losses (Technical and Commercial)	24%	
Collection Performance	86%	
Unserved Energy (% of delivered Energy)	70 gWh estimated (12% of 2009 delivered energy)	
CEET Turnover (billion FCFA/million US\$)	GFCFA95.5 MUS\$191	
CEET Electricity Sales (billion FCFA/million US\$)	GFCFA80.1 MUS\$160.2	8.5% growth over the last 10 years
Average Tariff (FCFA/US\$/MWH)	FCFA 117/kWh (US\$23.4/MWH)	
CEET's Net Operating Profit (million FCFA/million US\$)	GFCFA2.4 MUS\$4.8	
Government transfers (billion FCFA/million US\$)	GFCFA3.0 MUS\$6	
Cash Recovery Index (CRI)	65	Combine losses and Collection performance
Number of permanent employees	873	

1 US\$ = 500FCFA

Source: CEET 2011 Annual Report

C. Corporate Governance, Reforms and Performance Contract

6. Following the termination of concession contract with Togo Electricité, CEET was reestablished in 2006 and the capital contribution of the State was not clearly stated in the articles of incorporation. Moreover, the articles of incorporation state that the company is established as a business company and at the same time reinforce the Government control through the creation of a supervisory board. These approaches are difficult to reconcile and are not attractive to potential private sector investors. However, adjustment can be made if the decision to open the capital to the private sector is taken.

7. The performance contract was signed on February 3, 2009 for a period of 5 years (2009-2013) between CEET and the Government of Togo. The contract formalizes reciprocal commitments of CEET and the Government. The performance contract is clear, relatively accurate on the targets in terms of operation and investment. However, it lacks precision on how tariffs are set and there is no automatic indexing mechanism included. A methodology of evaluation of performance indicators is also missing. The contract is monitored by regular well documented reports.

8. The recent organizational diagnosis of CEET financed under a PPIAF grant, concluded that; (i) the performance of CEET is satisfactory, partly due to acquired experience of the concession period, (ii) the relationship between the Government and CEET is governed the performance contract with clearly defined objectives and targets, (iii) the main weak point remains the tariff setting an revision mechanism which is not clearly defined in the contract and poses a serious threat on the financial equilibrium of the sector, after the commissioning of Contour Global, (iv) the total investment needed for the period of 2010 to 2015 is approximately 91 billion FCFA of which 86 billion FCFA will be mobilized from multilateral donors (BOAD, The World Bank, EBID, etc...). The financing of the investment plan is not yet completely mobilized. Despite the recent clearance of Government arrears, CEET is still experiencing difficulties to collect Government's electricity bills. Progressive degradation of the level of technical and commercial performance is also observed.

D. Energy Security/Energy Dependence

9. Except for the biomass produced in Togo and the Togo's share of the Nangbeto hydroelectric plant managed by CEB, all commercial energies (refined petroleum products, natural gas, electricity imports) currently consumed in Togo are imported. While permits have been granted for off-shore crude oil and natural gas exploration, no commercial discoveries have been made yet.

10. To meet its 2011 135MW peak demand and 849 GWh of energy, Togo's purchased 91 percent of its requirements through CEB – importing itself through interconnections with Nigeria and Ghana, generating at the Nangbeto hydro (65MW) it co-owns with Benin¹² -, and through the Contour Global IPP of 100MW

¹² CEB's output is shared 50-50 between Benin and Togo.

commissioned in November 2010. (see Map 2)¹³. With the commissioning of the Contour Global thermal generating plant, the supply situation changed substantially. It should also be noted, that through CEB, Togo's is completing the studies required to finance and build the Adjarala 147 MW hydroelectric project (expected commissioning date: 2017/2018).

E. Technical Performance

11. Togo's electricity subsector main key technical performance parameters are provided in table 3 below. The subsector technical performance can be characterized as follows:

- a. whereas in 2011, Togo imported 91 percent of the electricity it used through CEB (para. 7), the situation started to evolve in 2011/12 with the commissioning of the Contour Global 100MW plant sited in the capital Lome; this will clearly have a profound impact on the technical and financial performance of the sub-sector;
- b. the quality of service (as measured by the number of distribution outages) is low due to: (i) the inability of Togo's network to isolate itself from problems in Nigeria in particular because of the physical condition of Nigeria's transmission and distribution networks and delays in rehabilitating these infrastructures; and (ii) the physical condition of the transmission and distribution networks within the country, where little investment have been made over the last 20 years to rehabilitate and strengthen the networks, which has led to a deterioration of the quality of CEET's service.

Table 3: Electricity Sub-Sector Technical Performance

Topic	Togo – 2011	Comparator
Quantity of Power imported through CEB and purchased from IPPs	From CEB: 91% i.e 770 GWh Form Contour Global: 8% i.e 67.2 GWh	IPP: Contour Global – 100 MW diesel- started generation in November 2010
CEET installed and available generating capacity	57.8 MW installed; 20.8 MW available	
Unserved Energy	70 gWh (2009)	
Distribution Technical and Commercial Losses	24%	Of which technical losses estimated to be 15-17%
Load Factor	72%	70% in 2010

¹³ Nangbeto is a 65 MW hydroelectric plant located in Togo, with an output shared 50-50 between Togo and Benin, and developed and own by the Communaute Electrique du Benin (CEB), the power utility co-owned by Benin and Togo.

F. Commercial Performance

12. Togo's electricity subsector commercial performance is mixed as indicated in table 4 below: (i) access to electricity is fairly low (25.6 percent on average) and very low in the rural areas (5 percent in 2009); (ii) CEET's average collection performance is 86 percent, with account receivables equivalent to 174 days of sales. This high level of account receivables for a large part reflects payment delays by public entities operating with an autonomous budget (hospitals, municipalities, schools, etc.) which in 2011 represent 22 percent of CEET's billing.

Table 4: CEET Commercial Performance

Topic	Togo – 2011
Access Rates	
... Global	25.6%
... Capital	40%
... Urban Centers	25%
... Rural Areas	5%
Collection Performance	86.2%
Collection Performance: Private accounts	95.4%
Collection Performance: Government and Public accounts	31% on the General Administration accounts; 80% on Parastatals, 43% on Public Institutions and 18% on the Municipalities/Local communities accounts.

G. Financial Performance

13. Over the last years, as shown in table 5 below, the financial performance of CEET has been mixed for the following main reasons: (i) retail tariffs are not adjusted regularly to reflect changes in costs, particularly imports and generation costs. A tariff adjustment was however made in November 2010, effective fiscal year 2011; (ii) CEET is relying on relatively more expensive generation from Nigeria and Ghana and from Contour Global; and (iii) natural gas, expected to be provided through WAGP, is not yet available in adequate quantities and more expensive than expected¹⁴. Over the next 5-6 years (horizon 2017-2018), it is expected that electricity generation costs will increase significantly as: (a) existing suppliers (Nigeria, Ghana in particular) will likely curtail their supply to meet their domestic needs, and increase their tariff; (b) natural gas delivered prices increase as they are partly pegged to WTI oil prices; and as (c) additional domestic demand for electricity

¹⁴ In early 2012, WAGP gas prices were \$9/mmbtu.

will be met through more expensive domestic generation¹⁵. The Government, CEET and CEB would therefore need to: (i) evaluate their supply options and associated costs (including potential for energy efficiency measures) through the development of a master plan and of short-term demand/supply analysis; and (ii) delineate an action plan to ensure CEET's (and CEB's) financial equilibrium, which would include policy statement and guidelines on tariff reviews, and most likely some tariff adjustments.

Table 5: CEET's Financial Performance (2011)

Topic	Togo	Comparator/comments
Turnover	FCFA95.5 billion (US\$191million)	In 2011 low voltage customers represented 63% of CEET revenues
Net Operating Income	FCFA2.4 billion (US\$4.8 million)	
Payments to CEB and CoutourGlobal	63% of CEET operational expenses	55% in 2010
Operational subsidy (Budget transfers)	FCFA3 billion	
Average tariff	107 FCFA/kWh	
Thermal production costs	124 FCFA/kWh (USc24.8/kWh)	Based on Contour Global full load operating plan
Return on assets	22%	15%
Debt/Equity Ratio	59/41	
Collection Performance	86.2%	For a large part: Government and public institutions accounts (see above)
Cash Recovery Index (CRI)	65	Comparator: 80%

H. Main Financing Sources

14. Most of CEET's transmission and distribution investments have been financed by bilateral and multilateral Donors and by the State; the contribution of the national utility, CEET, has been small. In 2010, a 100MW IPP was commissioned mobilizing commercial financing and support from international financing institutions (including IFC, OPIC). In April 2012, a contract for a 24MW private wind farm was also signed. Togo is also part of the development of the West Africa Power Pool (WAPP) and of the West African Gas Pipeline (WAGP)¹⁶, and benefits from regional financing available in support of interconnections and power pools developments.

¹⁵ Such as from Contour Global as reliable natural gas supply to Togo from Nigeria (through WAGP) is not expected before 2017 and potential low-medium cost generation from the Adjarala hydro under preparation is not expected before 2018.

¹⁶ Togo is connected to the West African Gas Pipeline with a delivery point operational at Lome. The West African Gas Pipeline Company (WAGPCo) shareholders are Chevron Nigeria, Shell Petroleum

CHAPTER III - INSTITUTIONS AND REGULATORY FRAMEWORKS

1. This chapter III describes the national and regional institutions and the regulatory frameworks relevant to Togo's electricity sub-sector, and offers recommendations to strengthen the organization at the national and at the regional levels, and the regulatory framework as they impact on Togo's electricity sub-sector.

A. National Institutions and Regulatory Framework

2. The electricity subsector activities are carried out under the overall supervision of the Ministry of Mines and Energy (MME). The key public entities in Togo's electricity sub-sector are: (i) Compagnie d'Énergie Électrique du Togo (CEET) responsible for the transmission and distribution of electricity within Togo. While CEET also maintains some generation assets¹⁷, it is largely a distribution company purchasing nearly all of its electricity from CEB and from Contour Global, an independent power producer; (ii) ARSE, the electricity sector regulatory entity set-up since 2000 within the MME; (iii) the Communauté Électrique du Bénin (CEB), a bi-national entity co-own by Togo and Benin and set up in 1960 to develop power generation and transmission projects mutually benefitting the two countries. Since November 2010, Contour Global, an Independent Power Producer (IPP), commissioned 100MW of diesel units in the capital, Lomé. Togo is also a member of ECOWAS and WAEMU and is a participant in the West African Power Pool (WAPP) and the West African Gas Pipeline (WAGP) projects.

3. **The MME**, is responsible for Togo's Energy sector and in particular for the electricity sub-sector. The Direction Générale de l'Énergie (DGE) is charged with Electricity. Specifically, the DGE is responsible for: (i) the participation in the policy preparation and implementation regarding electricity; (ii) the monitoring of the implementation of the investment program; (iii) the preservation of the assets owned by the state; (iv) carrying studies and controls in particular to ensure reliability and security; (v) defining and proposing energy efficiency measures and the development of mature energy technologies; and (vi) acting as energy advisor to the Government, local authorities and investors. Within DGE, the Planning Department ("Direction de la Planification") is responsible for: (a) ensuring a reliable energy supply; (b) carrying out the studies and assessments required to provide the energy needed by the country; (c) assessing the primary energy resources; (d) maintaining the energy data base and preparing the energy balances; (e) promoting renewable energies and efficient energy management; and (f) promoting energy substitution, from biomass in particular.

4. The Energy Information System (SIE), is managed by the DGE, and gathers and analyses all relevant energy and socio-economic information related to energy. It is therefore important that adequate resources are provided to the SIE.

Development Company of Nigeria, the Nigerian Gas Company (NGC), the Ghana National Petroleum Corporation (GNPC), SOBEGAZ (Benin) and SOTOGAZ (Togo).

¹⁷ In 2012, CEET installed generation capacity was 57.8 MW, with 20.8? MW operational mainly in secondary urban centers.

5. **ARSE. The Electricity Sub-Sector Regulatory Authority (Autorité de Réglementation du Secteur Electricité).** ARSE was created in July 2000¹⁸ to assist/advice the Minister of MME in the management of the electricity sub-sector, by: (i) participating in the definition and implementation of the sub-sector regulations; (ii) assessing and supervising the procurement processes; (iii) advising on tariff's proposals and decisions; (iv) advising on the development of energy infrastructures; (v) advising on expropriations or "eminent domain" issues; (vi) controlling and certifying electrical installations; and (vii) managing potential conflicts with concessionaires and consumers. It should be noted that the CEB Benin-Togo binational entity (See para. 13 below) has its own set of supra-regulations (delineated in the Code Benino-Togolais of Electricity) and can act independently of ARSE. With respect to electricity tariffs, CEET and CEB submit their requests to increase tariff to the Government and ARSE's responsibility is to review the justifications and conduct a financial analysis.

6. ARSE is made of 2 bodies: (i) a Decision-Making body composed of 3 persons¹⁹ proposed by the Minister of Energy, Minister of Commerce and by the Minister of Justice, and nominated by the President of the Republic. The 3 members remain public-servants, continued to be paid by their respective ministries and are appointed for a maximum of two terms each of 4 years; and (ii) a Direction Générale, responsible for the technical reviews and proposals.

7. **CEET.** In Togo, the distribution of electricity is handled by the state-owned power utility *Compagnie d'Energie Electrique du Togo* (CEET). While CEET has been a state-owned company since its foundation, it was briefly operating (between 2000 and 2006) under a private concession led by the consortium Elyo/Hydro Quebec International. The award of this concession was considered a success for Togo. However its failure in 2006 illustrated the serious challenges of such an approach and of Togo's energy sector, including lack of financing for investments, non or delayed adjustments of tariff to reflect cost increases²⁰, partial or delayed payments of electricity bills by public entities creating cash-flow problems, and the sector institutional inconsistencies where day-to-day politics may impact long-term planning and short-term operating decisions.

8. **Contour Global Togo.** Contour Global Togo is a private independent producer (IPP)²¹ that started operating in Lome in October 2010, under a 25-year concession arrangement. The plant of an installed capacity of 100 MW²² (6 trifuel units: DDO, HFO and natural gas) is sited in the port area of Lome. It is currently underutilized.

9. **Network Operating Committee.** This committee was envisaged in Law 2000-2012 of July 2000 to include all the concessionaires and key stakeholders to

¹⁸ Decree NO. 2000-090/PR.

¹⁹ One engineer, one economist and one lawyer.

²⁰ In particular, in 2001 the concessionaire was not authorized to adjust its tariffs to account for CEB 2001 tariff increase of 32 percent.

²¹ Contour Global is partly financed by IFC (a 20% shareholder) and OPIC.

²² Net output is between 95-97 MW.

interact with MME and ARSE. Such committee has however not been created.

10. **Applicable National Regulations.** The relevant electricity sub-sector regulations are: (i) law 2000/012 of July 2002 on the electricity sub-sector; (ii) implementation decree 2000-089/PR of November 2000 on regulated activities; and (iii) decree 2000/090/PR of November 2000 creating ARSE. CEB however is only subjected to the Code Benino-Togolais.

11. The current national regulations are not addressing in a specific manner some key topics such as tariff setting, the development of electricity services in rural areas (rural electrification), the promotion of renewable energies, and the conditions (notably prices) under which excess power from industrial plants would be made available to the distribution networks.

B. Regional and International Institutions and Regional Regulatory Framework (Public and Private)

12. The key international and regional institutions impacting on Togo's electricity sub-sector are the Benin-Togo Communauté Electrique du Benin (CEB), the Economic Community of West Africa (ECOWAS), the West Africa Economic and Monetary Union (WAEMU), and the African Union (in particular the Africa Energy Commission – AFREC).

13. **The CEB (Communauté Electrique du Bénin)** has been created by Benin-Togo in 1960 to carry out the import, generation, and transmission of electricity for the benefits of the two countries. CEB is jointly owned by Togo and Benin, with headquarters in Lome (Togo). The CEB is traditionally responsible for planning and procurement of the generation and transmission facilities needed to meet Benin's and Togo's demands. The CEB delivers power to Benin's distribution company, the *Société Béninoise d'Energie Electrique* (SBEE), Togo's distribution company, the *Compagnie d'Energie Electrique du Togo* (CEET), and to large industrial customers.

14. As per the current regulations, CEB is the sole buyer of the electricity generated within Benin and Togo's territories (since the 2003 revisions, CEB does not have a monopoly on generation), ensures transmission activities on behalf of Togo and Benin, and benefits from a monopoly on all electricity imports. Exports can be carried out by CEET or any generator under a concession agreement.

15. In 2006, in part because of the supply crisis, both Benin and Togo's authorities with the agreement of CEB decided, on an exceptional basis, to allow independent power producers to sell directly to the distributing companies. This allowed for example Contour Global to sign a PPA of about 100MW with CEET.

16. **The ECOWAS Energy Framework.** As a signatory of the ECOWAS agreements, Togo needs to implement the requirements of ECOWAS 2003 Energy Protocol²³. The key relevant aspects for Togo's electricity sub-sector relate to the open and non-discriminatory access to generation and in particular to transmission

²³ Energy Protocol A/P4/1/03 signed in 2003 by the members of ECOWAS.

infrastructure by all ECOWAS members, and fair pricing. Current regulations however provide CEB with a single buyer exclusivity position.

17. The regulations approved by the ECOWAS members in the context of the creation of the ECOWAS Regional Regulatory body (ARREC)²⁴ also stipulate that the electric power should be transmitted across the countries based on non-discriminatory, transparent, and reasonable prices, and in a competitive and open regional market.

18. **ECOWAS Regional Electricity Regulatory Authority (ARREC).** In 2008, the Regional Electricity Regulatory Authority (ARREC) was created by the Heads of States. ARREC defines and regulates the transfers of electricity amongst ECOWAS members with the objectives of furthering the development of a regional electricity market. Harmonizing the regional and national regulations and implementing them is therefore a key issue within the ECOWAS sub-region.

19. **The WAEMU (UEMOA).** Togo is also a member of WAEMU – the West Africa Economic and Monetary Union regrouping 8 West African countries²⁵. In 2009, WAEMU adopted an energy strategy focused on developing a West Africa regional electricity market, recognizing the relatively small size of each West Africa countries. In particular WAEMU members agreed to harmonize their regulatory frameworks with the objectives of promoting public-private participations (PPP), the development of independent regulators able to prevent and resolve conflicts, as needed the restructuring of the electricity sub-sector with the objective of improving governance and performance, and increased regional cooperation and the development of regional energy projects.

20. **The Africa Energy Commission (AFREC).** In addition to the objectives laid out by ECOWAS and WAEMU, Togo's participation in the Africa's Energy Commission requires each country to focus on: (a) the research and development of renewable energies; and on (b) capacity and institutional building.

21. **The West Africa Power Pool (WAPP).** The West Africa Power Pool (WAPP) was created in 1999 by the ECOWAS Heads of State and Governments in order to address the issue of power supply deficiency within West Africa. The West African Power Pool is guided by a Steering Committee comprising Energy Ministers of ECOWAS Member States, supported by a Project Implementation Committee, comprising Managing Directors of Members States utilities and Technical and Institutional Working Groups. The WAPP seeks to increase the level of power supply in West Africa through the implementation of priority generation and transmission projects. Relevant projects for Togo include the 330 kV transmission links between Nigeria and Cote d'Ivoire. Regional projects however tend to be challenging to design and implement as they are complex involve more than one country and utility.

²⁴ ARREC was created in January 2008.

²⁵ WAEMU(UEMOA) was created in 1994 with 8 members: Benin, Burkina Faso, Cote d'Ivoire, Guinee Bissau, Mali, Niger, Senegal and Togo.

22. ***The West African Gas Pipeline (WAGP)*** is a natural gas pipeline supplying gas from Nigeria's Escravos region of the Niger Delta area to Benin, Togo and Ghana. It is the first regional natural gas transmission system in sub-Saharan Africa. The pipeline is owned by the West African Gas Pipeline Company Limited (WAGPCo), a consortium of Chevron (36.7 percent), Nigerian National Petroleum Corporation (25 percent), Royal Dutch Shell (18 percent), Volta River Authority of Ghana (16.3 percent), Société Togolaise de Gaz (SoToGaz – 2 percent) and Société Béninoise de Gaz S.A. (SoBeGaz - 2 percent). It is operated by Chevron Corporation. Because of pipeline constraints within Nigeria, the WAGP project is currently only delivering 80 mmcuft/day to the foundation customers in Ghana (Takoradi power plant) and 2.5 mmcuft/day to CEB (the initial plans were respectively 133 mmcuft/day for Ghana and 10 mmcuft/day for CEB).

23. ***Applicable regional Regulations.*** As a member of ECOWAS and WAEMU and of the WAPP and WAGP projects, Togo is subject to the applicable regional and project regulations. Harmonizing the regional and national regulations is therefore an important matter for Togo's electricity sub-sector.

C. Evolution of the Electricity Sub-Sectors of Togo and of the Region

24. Togo's electricity sub-sector, the sub-sectors of the region and the regional institutions will over time become larger and more complex. In Togo, the consumption of electricity services should increase substantially at 8 percent per year in a base case scenario and possibly faster if economic growth picks up (See Chapter IV – Electricity Demand- Supply). The number and type of participants should also increase and be more diversified, including an increase in the participation of private sector investors, in generation, open-access transmission systems, etc., and a different mix of financiers.

25. However Togo's electricity sub-sector will remain relatively small. Togo should therefore strengthen its existing institutions within the current institutional set-up by: (i) strengthening the planning capacity and financial skills of MME's Planning Directorate; (ii) providing more autonomy to ARSE and strengthening its capacities; and (iii) strengthening CEET planning and project monitoring and financial management functions.

D. Main Issues and Recommendations

26. As described in the preceding paragraphs, Togo's electricity subsector is subject to national, regional and international regulations, sometimes conflicting and hampering the development of the sub-sector. Benin and Togo also created CEB, the bi-national utility between Togo and Benin, with its own set of regulations that evolved over time.

27. There are inconsistencies between the various regulatory frameworks in particular between the ECOWAS framework, the CEB Benino-Togolais Code, and Togo's own regulations and this would need to be resolved. For Togo's electricity subsector the key institutional and regulatory issues are related to the overall sub-sector structure and the constraints it puts on Togo's ability to secure its

requirements (domestic generation or imports) and to an underdeveloped regulatory framework and institutions.

28. For CEET, it appears that "Leasing" or "Concession" forms of PSP will surely provide the appropriate technical and economic solutions to mitigate risks mentioned above. However, given the recent experience with Togo Electricité and the effect of the pending litigation on the concession contract termination, a new concession or leasing will be politically hardly defensible.

29. The main recommended areas of actions at the institutional and regulatory levels are therefore related to:

- a. the sub-sector structure in particular: (i) the transformation of the bi-national entity CEB and the revision of CEB's Code; (ii) the strengthening and transformation of the sub-sector regulatory entity, ARSE; and (iii) the institutional mechanisms to increase access to electricity in rural areas; and
- b. the regulatory framework and the implementing regulations regarding: (i) Public Private Partnerships (PPPs); (ii) tariff setting and adjustments; (iii) the development of rural electrification; and (iv) the promotion of renewable energies.

Electricity Sub-Sector Structure

30. ***Transformation of CEB's Role and Revision of the Benin-Togo Electricity Code ("Code Benino-Togolais de l'Electricité")***. As mentioned above there are discrepancies between the existing regulatory framework (particularly with respect to CEB) and the commitments made by Togo (and Benin) towards ECOWAS and WAEMU. While not all the details pertaining to the regional electricity market are known now as they are still under development, Togo's should be proactive. To be aligned with its regional commitments, it is recommended that Togo work towards:

- a. transforming CEB into a regional utility without exclusivity rights, (i) owning and managing the transmission assets of the two states and some common generation assets (Nangbeto hydro, upcoming Adjarala hydro)²⁶; and (ii) responsible for the dispatching on the Togo-Benin transmission network;
- b. CEET owning the distribution assets in Togo, fully responsible for distribution and as needed generating from its own facilities and contracted IPPs. In order to improve the performances of CEET, a management contract or technical assistance focusing on the management of technical and the commercial performances with clearly defined objectives and targets should be envisaged. An independent auditor can be recruited to periodically monitor the performances; and

²⁶ In all scenarios, CEB would need to segregate/separate its generation from its transmission functions, and to keep separate accounts for the generation activities and for the transmission activities. This would be essential to determine the wheeling charges on the CEB transmission network.

- c. generators, within Togo or ECOWAS, benefitting from the non discriminatory and open-access to CEB transmission system as envisioned under the ECOWAS treaty, and able to contract directly with any power distribution companies or large customers.

31. This may be implemented in phases. Phase I could be as follows:

- a. elimination of CEB's sole buyer provision in the CEB Code, allowing for entry of independent power producers operating on a country basis or on a sub-regional level;
- b. transfer to CEET of CEB's current industrial customers as this would focus CEB on developing the generation and transmission assets;
- c. confirmation that, for the regional generation projects under development such as the Adjarala hydroelectric project, CEB will be the off-taker;
- d. authorization provided to CEET, independent power producers and other producers with surpluses, to export power using CEB's transmission network, and sell power to the distributing utilities and large customers. The tariff studies proposed for CEB and the accounting separation of the generation and transmission assets and expenses (see below) will be needed for a fair and transparent determination of the wheeling charges;
- e. accounting "Separation" of CEB's generation and transmission activities in order to determine clearly the transmission costs and to lay out transmission pricing for the CEB network; and
- f. development of relevant regulations such as a Transmission Network Code ("Code Réseau de Transport") in conformity with the ECOWAS principles, etc.

32. ***Strengthening and Transformation of ARSE's modus operandi and role.*** In an expanding electricity subsector with more national and regional participants, Togo's regulatory authority (ARSE) needs to be reformed and expanded to: (i) increase its autonomy from the Ministry in charge of energy, for example by indicating that the regulators are « nominated » by the President of the Republic, cannot be civil servants, etc.; (ii) ensure an unbiased perspective with respect to public entities (such as CEET, CEB) or private entities (independent producers, possibly small distributors in rural areas, and with respect to national or regional entities); (iii) task ARSE to review regularly the financial situation of the regulated entities and CEB and submit proposals with respect to the application of the agreements, and the electricity tariffs; and finally (iv) ARSE's role should also be expanded to cover renewable energies, rural electrification and the use of natural gas for electricity generation.

33. ***Strengthening the Planning Unit of the Ministry responsible for electricity.*** To meet the objectives of the Energy Policy and Strategy, in particular increased access, catch-up on the under-investment of the past years and to ensure the least-cost development of the sub-sector in a timely manner, a very ambitious investment program has been developed to be carried out by various actors: Togo's

domestic utility (CEET), the bi-national power entity (CEB), and also by other entities. Coordinating the investment effort (preparation, financing mobilization, implementation) requires expertise and resources. The Ministry of Energy should therefore assess the capacity and the financial resources available to its Planning Directorate (“Direction de la Planification”) to design and implement the investment program.

34. **Developing access to electricity services in rural areas.** Increasing access to electricity services in rural areas is a key objective of the Government. Decisions will need to be made regarding the preferred institutional set-up and the policy and regulatory frameworks (see also Chapter IV). This would require discussions on the pros and cons of alternative levels of service and of delivery models informed by the experiences of other countries and decisions on one or a few models, possibly creating a rural electrification agency and a rural electrification fund (or an energy fund).

Regulatory Framework and Implementing Regulations

35. **Togo’s Relevant Regulations.** The following adjustments on Togo’s electricity sub-sector regulations are proposed in part to support the implementation of Togo’s Energy Policy and Strategy (Chapter I):

- a. **Opening-up the options for private sector participation.** Article 23 of Law 2002/012 of July 2000 refers to concession agreements (“conventions de concession”). Referring only to concession is very restrictive as other arrangements have been implemented in other countries. This may be particularly relevant for new rural electrification mechanisms.
- b. **Tariff Setting and Tariff Adjustments.** Regarding the regulatory framework on electricity tariffs, the main issues to be resolved in the short term by GOT, with the participation of CEET and possibly CEB relate to tariff setting and tariff adjustments (Electricity tariff issues are discussed in more details in Chapter V): (i) delineation of a transparent electricity tariff policy covering the operations to be carried out by CEET and by potentially other operators in particular in rural areas; (ii) clarification regarding the respective roles of CEET and ARSE in the periodic review of the revenue requirements (Utility and subsector as a whole) and adjustments in retail tariffs; and (iii) a tariff and incentives policy to promote renewable energies, and off-grid rural electrification.
- c. **Developing access to electricity services in rural areas.** This would require a decision on one or a few models to be implemented and the development of a set of implementing regulations and documentation (see para. 33 above).
- d. **Promoting renewable energies,** as part of the GOT’s diversification strategy. This would likely require a specific set of tariff setting principles and implementation guidelines (technology based feed-in tariff or other approaches), fiscal and accounting regimes and incentives, etc²⁷; and

²⁷ Various philosophies and approaches have been developed and tested over the last 10 years.

- e. **Promoting energy efficiency**, particularly with respect to electricity through economic incentives for private sector investment and operations, and other budgetary means for public sector entities.

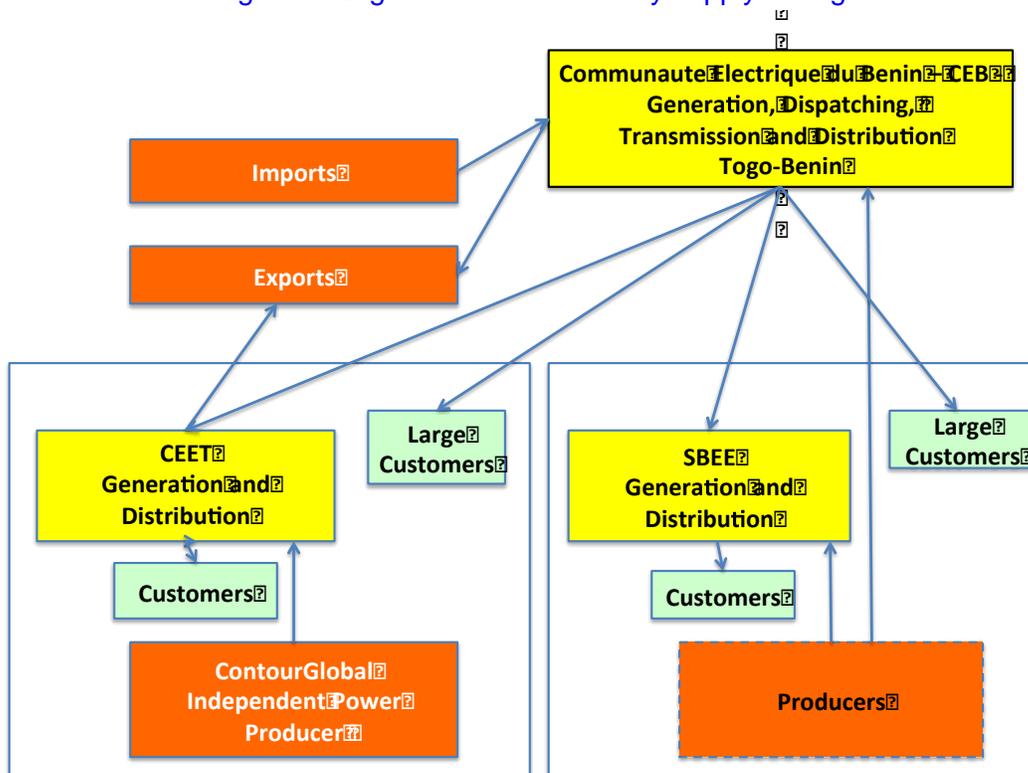
CHAPTER IV - ELECTRICITY DEMAND AND SUPPLY

1. This chapter IV discusses the electricity demand-supply outlook, the supply options and the impacts on the costs of delivering electricity services to the Togolese population and the economy, and the main challenges facing Togo over the next ten years (2012-2022).

A. Organisation of Electricity Supply in Togo

2. Figure 4 below summarizes the relationships between the various actors involved in the demand and supply of electricity in Togo.

Figure 5: Organization of electricity supply in Togo



Source: SOFRECO Report – Sous-Secteur Electrique du Togo

B. Overview of CEET Supply and Demand Situation

3. CEET is the state-own power utility charged with the distribution of electricity services in Togo (see Chapter III). The key data regarding CEET and CEB's operations over the 2007-2011 period are provided below in tables 6a and 6b:

Table 6a: CEET Key Operational Data

Activity	Units	2007	2008	2009	2010	2011	Growth Rate 2007-2011 (%)
Energy Purchased and Generated by – CEET (1)	GWh	557.8	641.1	713.0	798.0	849.0	9.0% (8.5% over the last 10 years)
Electricity Sold by CEET (1)	GWh	435.1	507.0	564.4	635.0	686.0	9.5%
Peak Demand	MW	100	111	118	130	135	
Load Factor	%	64	66	69	70	72	
Transmission and Distribution Losses	Losses (% of Purchases and Generation)	22	21	21	20	24	
Collection Rate	% of billing collected	95.1	95.6	88.0	89.5	86	
Cash Recovery Index (CRI)	Definition	74.2	75.5	69.5	71.6	65	
Turnover	FCFAbillion US\$million	37.6 75.2	43.3 86.6	56.4 112.8	71.3 142.6	95.5 191.1	
Revenues from Electricity Sales	FCFAbillion US\$million	N/A	N/A	49.4 98.8	57.4 114.8	80.1 160.2	
Average Retail Price	FCFA/KWh USc/KWh	86.5 17.3	85.4 17.1	87.5 17.2	90.4 18.1	106.5 21.3	
Average Purchase Price CEB	FCFA/KWh	N/A	N/A	50 10	55 11	55 11	
Average cost	FCFA/KWh USc/KWh	100 20	97.5 19.5	102.5 20.5	133.8 26.7	N/A	

Exchange Rate: 1US\$= FCFA500

(1) Excludes CEB sales of 165 GWh in 2009 to the phosphate and cement clients (SNPT and WACEM).

Table 6b: CEB Key Operational Data

Activity	Units	2007	2008	2009	2010	2011	Growth 2007-2011 (%)
Energy Purchased and Generated by CEB	GWh	1,388	1,494	1,792	1,863	2,152	11.6%
Electricity Sold by CEB	GWh	1,309	1,418	1,712	1,791	2,152	13.2%
Transmission and Distribution Losses	Losses (%)	5.7%	5.1%	4.5%	3.9%	4.5%	-5.7%
Turnover	FCFA billion US\$ million	N/A	76.5 153.0	102.2 204.3	103.8 208.0	119.0 237.9	15.9%*
Revenues from Electricity Sales	FCFA billion US\$ million	66.7 133.3	71.9 143.7	98.7 197.4	101.0 202.1	116.7 233.3	15.0%*
Average Tariff	FCFA/KWh USc/KWh	50.9 10.2	50.7 10.1	57.6 11.5	56.4 11.3	54.2 10.8	1.6%
Average Operating Cost	FCFA/KWh USc/KWh	40.0 8.0	40.5 8.1	50.7 10.1	49.7 9.9	51.5 10.3	6.5%

Exchange Rate: 1US\$= FCFA500

* Growth rate for 2008-2011

C. Demand and Consumption of Electricity in Togo (Past Trends and Perspectives)

4. **Past Trends.** In 2011, CEET's electricity sales and peak demand were respectively 686GWH and 135MW. Over the last 10 years, CEET electricity sales increased by 8.5 percent/year, and by 9.5 percent per year over the last 5 years (Annex 5 presents detailed information on electricity sales in Togo). For 2011, the load factor was 72 percent²⁸.

5. **Structure of Electricity Consumption.** In 2011 the low voltage (LV) consumers represented about 60 percent of CEET's sales and the medium voltage (MV) customers 40 percent²⁹. The consumption of the low voltage customers is increasing relatively quickly, which will impact the load factor and the peak demand requirements (see table 7 below).

²⁸ Peak demand occurs at 7:00 pm reflecting the relatively large share of residential demand.

²⁹ CEB is supplying directly the phosphate company (SNPT) and the cement company (WACEM) which consumed 135 GWh in 2010 and 166 GWh in 2009.

Table 7: Structure of CEET's sales

Sales (GWh)	2006	2009	2010	2011	Annual Growth 2006-2011
Low Voltage Customers	262 (58%)	349 (62%)	383 (60%)	410 (60%)	9.2%
Medium Voltage Customers	186 (42%)	216 (38%)	252 (40%)	276 (40%)	8.0%
Total	448	565	635	686	9.0%

Source: CEET 2011 Annual Report, SOFRECO and Nodalis reports.

6. **Electricity Access.** For 2011, the global electricity access rate for the country was estimated to be 25.6 percent, respectively 30 percent urban areas (with about 40 percent in the capital Lome) and only 5 percent in the rural areas, showing however very large and growing disparities. Except for Ghana, Togo's access rate to electricity services is comparable to the neighboring countries and at par with sub-Saharan Africa (See table 8 below). Increasing sustainable access to electricity services in peri-urban and rural areas while ensuring CEET's financial viability, is therefore one of the challenge to be addressed through specific access, delivery and financing programs, one peri-urban customers and one for rural customers, and a specific investment financing and tariff policy.

Table 8: Access to Electricity Services

	Access – 2011 (%)
Togo	25.6
Benin	25
Ghana	60
Sub-Saharan Africa	21

7. **Unserved Energy, Quality of Service and Economic Costs.** In 2009, it has been estimated that about 70 GWh, equivalent to 12 percent of CEET's sales, could not be delivered to the CEET customers because of supply and technical problems in the transmission and distribution networks including problems in the Nigerian transmission system due to system overload, poor maintenance and lack of investment. Based on an estimated average economic cost of FCFA500 to 1000 per kWh (US\$1-2/kWh) of unserved electricity³⁰, the economic cost for Togo of this relatively poor quality of service was FCFA 35-70 billions in 2009 (US\$70-140 million), a large economic and social penalty. Improving the quality of the electricity services through investment is therefore critical and is very much part of the government policy and strategy for the sub-sector.

8. **Expected Demand Growth (2012-2020).** As for any emerging economy, there is considerable uncertainty regarding the evolution of the electricity demand

³⁰ Sofreco Study on Electricity Sub-Sector, Final Report p. 50-55.

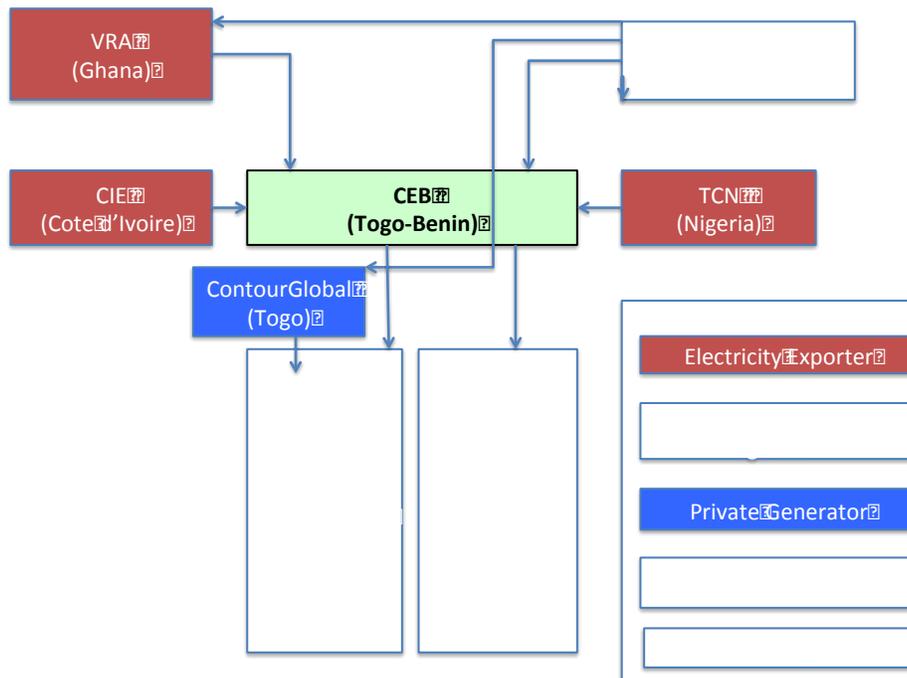
and consumption in Togo. CEET's 2010 business plan is built on an average demand growth of 11 percent per year, above the historical trend. CEB also developed two other scenarios of respectively 5 percent and 8 percent demand growth per year. Assuming a conservative average 8 percent growth per year, electricity demand and supply requirements for Togo will more than double over the next 10 years, and an additional supply of about 200MW will be required to meet Togo's electricity demand requirements. Accounting for the fact that electricity supply from Nigeria and Ghana may be curtailed because of demand growth and delayed generation investment in Nigeria and Ghana, Togo will probably need to secure an additional 25MW per year over the next 10 years. A higher growth in Togo's demand of 11 percent per year (as proposed by CEET) will lead to additional imports/generation requirements of 30-35MW per year i.e a doubling of the demand in 6-7 years.

9. This would need however to be carefully evaluated through a long term (20 years) generation and transmission master plan (integrating CEB, Ghana and Nigeria and WAPP's plans at a minimum), and a short/medium term (5 years) plan to determine if short term actions are needed.

D. Existing Generation and Transformation Capacity

10. Current electricity supply arrangements for Togo are summarized in the following figure:

Figure 6: Current Electricity Supply Arrangements



Source: PSP/audit CEET rapport#1, p.35

11. The following table 9 describes the existing generation and transmission capacity available for Togo. In 2011 Togo's electricity supply of 135 MW was provided as follows: (a) 80 MW was provided by CEB through imports from Nigeria and Ghana and by CEB own generation (Nangbeto hydro)³¹ ; (b) CEET's own thermal generating units (about 10MW); and by (c) the Contour Global (CG) IPP (50 MW peak load in 2011)³².

Table 9: Existing Generation and Transmission Infrastructure and Capacity

Power Plant	Type	Installed Capacity (MW)	Available Capacity (MW)	Firm Capacity for Togo (MW)
NON CEB				
Lome Sulzer Thermal Plant (Headquarters)	Diesel	2x8=16	7	10
Lome CTL Thermal Plant	Diesel	14x1=14	14	
Kara Thermal Plant	Diesel	16	4	
Sokode Thermal Plant	Diesel	4	1.5	
Kpime Plant	Hydro	2x.78=1.6	1.5	
Contour Global Lome Thermal Plant	Diesel	6x16.6=100	100	95
TAG Lome Plant	TAG	2x25=50	0	0 (obsolete)
TOTAL TOGO			128	105
CEB INFRASTRUCTURE IN TOGO				
Imports from Nigeria and Ghana	Transmission Line	80	80	80
Lome TAG (Lome CTL site)	TAG	25	20	20
Nangbeto Hydro Plant	Hydro	2x32.8=65.6	65	20
TOTAL CEB			165	80
TOTAL AVAILABLE FOR TOGO				180

Source: Sofreco Study

³¹ No power was available from Cote d'Ivoire

³² Contour Global dispatchable output is 95-97MW depending on the fuel used.

E. Perspectives Regarding Domestic Generation and Imports Costs

12. Over the next 10 years, Togo will therefore face significant challenges to meet the national demand for electricity within an acceptable level of reliability, while managing supply costs and retail tariffs levels.

Existing Generation and Imports Arrangements

13. The following tables provide information on the unit costs of the existing generating plants in Togo (Table 10), and on CEB current tariffs (Table 11).

Table 10: Unit Generation Costs (2010)

Generating Plant	Available Capacity and Energy	Togo's Share	Type of Fuel	Fuel Cost	Total Cost (FCFA/kWh and US\$/kWh)	Variable Cost (FCFA/kWh and US\$/kWh)
Nangbeto Hydro	63MW 170GWh (220 in 2009)	32MW 85GWh			FCFA25 US\$5	
Contour Global	95MW 750GWh	95MW 750GWh	Trifuels (Natural Gas, HFO, DDO)	Gaz 9\$/mmbtu HFO: FCFA 400/ton		HFO: FCFA80 (US\$16) Gas: FCFA36 (US\$7.2)
TAG CEB Lome	20MW 36GWh	20MW 36GWh	JetA1, Natural Gaz	Jet: FCA400/KWh Natural Gaz: 9\$/mmbtu		Jet: FCFA150 (US\$30/KWh) Natural Gas: FCFA65(US\$13)
Diesel CEET	10MW	10-15GWH	DDO	FCFA500/liter		FCA160/kWh (US\$32/KWh)

Table 11: CEB's 2009 Tariffs

CEB Client	Energy Delivered to Togo (GWh)	CEB Tariff
CEET	700	FCFA55/KWh US\$11/KWh
WACEM and SNPT	166	FCFA50/KWh US\$10/KWh

New Generation Sources and Imports

14. Togo, together with its partners in the sub-sector, is currently assessing and developing its supply options. The main supply projects and their characteristics are:

- a. the DeltaWind Togo (Eco Delta) windfarm of 24 MW total installed capacity, for which a concession contract was signed in April 2012, for commissioning by mid 2014. Guarantee capacity would be 5-6 MW;
- b. extension of the Contour Global plant (as envisaged in the phase I concession agreement) up to another 100MW. Such extension would take about two years to complete;
- c. the Adjarala hydroelectric project, a joint 147MW project between Benin and Togo (US\$380 million). Mobilization of the financing with the Donors is currently discussed. The project could be commissioned by 2018;
- d. additional natural gas deliveries from the West African Gas Pipeline project (WAGP) benefitting Togo, but such gas will most likely not be available before 2017;
- e. interconnection Nigeria/Cote d'Ivoire in the context of the WAPP (330KV), to transfer power surpluses (if available) to deficit countries; and
- f. strengthening the existing interconnections between Nigeria, Benin and Togo through synchronization of the systems.

15. As indicated in table 12 below, over the next 5 years (2012-2017) Togo's options regarding electricity generation are limited and the cost of firm energy will most likely be reflecting thermal generation costs in Togo. Beyond 2017-2018 Togo may benefit from cheaper generation from Adjarala (expected commissioning in 2018) and the WAGP gas (however additional firm volumes of gas are not expected from Nigeria before 2017).

16. ***The PPP and IPP Frameworks.*** It is likely that additional generation will be designed and financed in the context of Public Private Partnerships (PPPs) either on a domestic level (such as recently with the Contour Global and DeltaWind projects), or on a sub-regional level for example through CEB. In addition PPPs could be applied to the rehabilitation of existing infrastructure, operations and maintenance contracts (and even to CEET as was done during the 2000 – 2005 period). A 2011 analysis indicated that (based on the Contour Global and the DeltaWind Togo experiences) there are no substantive legal, regulatory, financial, environmental and

social barriers to private sector participation in Togo's electricity sub-sector³³. However at the policy level, the incentive and regulatory framework particularly to promote renewable energies and small-scale rural electrification needs to be enhanced (see Chapter I, Energy Policy).

17. For Togo it is therefore critical that: (i) priorities are clear and shared, hence that a robust least-cost supply plan be developed with the participation of CEB and adopted quickly by the government and CEET; (ii) decisions be made regarding the private-public partnerships that need to be fostered on an accelerated basis; and (iii) as needed the PPP framework be upgraded.

18. A list of supply options, timing and preliminary costs estimate is provided in the following table 14. The least cost option appears to be the Adjarala hydro (currently under preparation), the development of new hydros and the rehabilitation of existing facilities (Togo and CEET should be proactive in these areas), and Contour Global³⁴. However unit supply costs to Togo would be significantly higher than the existing supply sources and this will have a substantial impact on the cost of service, the tariffs, and CEET financial situation, and will call for a clear electricity tariff setting and tariff adjustment policy and increased financial modeling capacity both at CEET and CEB.

Table 14: New Supply Options 2012-2022

Supply Option	Available Firm Capacity for Togo (MW)	Timing (Commissioning Year)	Unit Cost (FCFA/kWh and US\$/kWh)	Variable Costs (FCFA/kWh and US\$/kWh)	Comment
Adjarala Hydro	70	2018	FCFA55/kWh	Small (mostly fixed costs)	Initial investment of \$380 million
Contour Global (HFO, Diesel oil)	90-95 MW	2011 (Phase I)		FCFA122/kWh (US\$25/kWh)	At full load.
Contour Global (natural gas)	90-95 MW	2017 (Phase II)		FCFA75/kWh	
Togo small hydros	Unit costs need to be reassessed	Earliest 2018 (5 years)	Variable with site	Small (mostly fixed costs)	Assessments were carried out during the 1980-1990 period
Wind (Delta Wind)	(energy only). Installed capacity: 24 MW	2014	FCFA 100-120/kWh	Small (mostly fixed costs)	Not firm capacity
New Thermal IPP	100 MW	2016	FCFA100-120/kWh		

³³ Nodalys Emergence Consult/Nodalys/Fiducaire Afrique financed by PPIAF - Options for Private Sector Participation – May 2011.

³⁴ An increase generation level by Contour Global will reduce the unit fixed costs.

F. Energy Efficiency and Demand Management

19. Relatively little attention has been given so far to the option of increased energy efficiency and demand management for the electricity sub-sector of Togo. The World Bank (2012) is however financing a first effort through the distribution of 400,000 Compact Fluorescent Lamps (CFLs). As electricity demand and supply will remain tight as least for a few years, Togo should delineate a feasible, realistic energy efficiency and demand management program, with priorities and phases, assess the benefits and costs, the financing requirements, the sustainability of such program and the implementation arrangements.

G. Main Challenges and Recommendations

20. To meet the key challenges of ensuring an adequate and reliable supply of electricity over the next 10 years, and increasing access to electricity services in a context of increasing internal demand and reduce availability from neighboring countries, Togo needs to be focused and proactive. Substantial private and public financing will need also to be mobilized over the next 10 years and the sub-sector financial equilibrium will need to be secured through adequate tariffing.

21. The key challenges and recommendations facing Togo's electricity sub-sector and the Ministry responsible for Electricity can therefore be regrouped in four broad categories: (i) implementing investment in generation, transmission and distribution and in personnel; (ii) increasing access to electricity services; (iii) ensuring the financial equilibrium of the sub-sector, CEET and CEB, and reviewing the tariffs; and (iv) adjusting the regulatory framework to account for internal and regional requirements. This is discussed in the following sections.

22. ***Implementing investment in generation, transmission and distribution and in personnel.*** This would include:

- a. improving the quality of supply (imports and distribution) by rehabilitating, strengthening and extending CEET's distribution networks;
- b. developing a generation and transmission master plan, to firm up priorities, including reassessing the technical, economic and financial viability of Togo's medium size hydro plants, and adopting a short-term supply management plan;
- c. for the Adjarala hydro project (147MW), accelerating the completion of the technical, economic, environmental and social and financial studies, the definition of the implementation arrangements and the mobilization of financing;

- d. mobilizing the Governments and ECOWAS to secure and speed-up the delivery of natural gas from Nigeria through the WAGP pipeline, as this is one of the cheapest supply options, and would also diversify the energy matrix; and
- e. defining and mobilizing financing for capacity building and technical assistance in the Ministry of Energy and CEET.

23. ***Increasing access to electricity services, in the urban/peri-urban and rural areas.*** This would include the delineation and feasibility level preparation by:

- a. CEET, of an access and quality strengthening program for the main cities; and
- b. the Government, of a rural electrification program promoting innovative approaches based on decentralized and small scale operations. To significantly increase access to electricity services in rural areas, many countries (but not all)³⁵ have decided to: (i) set-up new institutions such as a Rural Electrification Agency focusing solely on rural electrification and delivering the services using a mix of service providers (small private enterprises, NGOs, communities, etc.), proposing various levels of services and of tariffs, supporting productive activities and financing of the up-front investment; and to (ii) let the main power utility concentrate on urban/peri-urban areas with different tools. Togo should benefit from the experiences of emerging economies and design a RE strategy and an implementation plan that meets its objectives and traditions, and ensure sustainability.

24. ***Ensuring the financial equilibrium of the sub-sector, CEET and CEB, and reviewing the tariffs.*** This would include:

- a. a thorough analysis of the investment programs (including of CEET and of CEB);
- b. a detailed financial and tariff analysis together of CEET and CEB, building up on the financial modeling tools now available to CEET; and
- c. a transparent and open framework for all the stakeholders to participate in the initial design and in the development of solutions.

³⁵ Mali, Senegal, Cameroon, to name a few, have created rural electrification agencies and rural electrification funds. Other countries such as Ethiopia are implementing their rural electrification program through the national power utility.

25. **Adjusting the regulatory framework to account for internal and regional requirements.** This would include (see also Chapter III – Institutional and Regulatory Frameworks – for more details):

- a. deciding and adjusting if necessary the regulatory framework including amendments to the Benin-Togo Electricity Code (“Code Benino-Togolais de l’Electricité”) applicable to CEB to align it with Togo’s commitments with ECOWAS and WAEMU (see Chapter III);
- b. increasing the autonomy and capacities and reviewing the modus-operandi regarding the regulator, ARSE; and
- c. strengthening and adopting a new PPP framework and key implementing regulations, covering also renewable energies and rural electrification.

26. **Others.** Delineating an energy efficiency and demand management program through first a feasibility study covering the priorities areas, assessing the benefits and costs, the financing requirements, the sustainability of such program and the implementation arrangements.

CHAPTER V - ELECTRICITY TARIFFING

1. This chapter V discusses Togo's current retail electricity tariff and the tariff adjustment framework, the tariff levels and their adequacy with the financial equilibrium of the sub-sector, and the main challenges and recommendations regarding electricity tariffing in Togo.

A. Electricity Tariffs Setting and Adjustment Framework

2. The MME is responsible for the electricity tariff policy and to propose to the Government revisions to electricity tariffs. CEET and CEB submit their requests for tariff reviews to the Government and the regulator (ARSE) reviews the justifications and conduct its own financial assessment.

3. There does not seem however to be clear and shared principles and mechanisms to set and adjust the retail electricity tariffs and only a limited role is in fact granted to ARSE regarding tariff matters (See also chapter III on ARSE and the regulatory framework). Similar comments seem also applicable to the setting of CEB's tariffs.

4. CEET's performance contract with the Government, which covers the January 2009-December 2013 period, states (art. 16) that CEET will provide an annual report on the cost of service, and if necessary a proposal for revising tariffs, and that the government will review CEET's proposals (Chapter II provides the Performance Contract indicators).

5. However the Performance Contract remains very vague regarding the tariff policy (i.e. cost-plus, price cap, revenue cap, or other approaches) and the level of return expected from CEET. It does not discuss any tariff adjustment mechanism to account for changes in the price of electricity imports in FCFA, costs of domestic generation and other factors. This topic is also not discussed in the Energy policy document under preparation. Because of its impacts on the financial viability of CEET and CEB and on the ability of Togo's to mobilize private sector financing (for example through IPPs) the electricity tariff policy and regulations has become one of the critical issues for the country's electricity sub-sector.

B. Tariffs Levels

6. **Current Levels.** Table 13 below provides the 2011 tariff levels for CEET by main categories of customers and CEB's tariff to the two distributing companies it sells power to.

Table 13: Electricity Tariff Levels (2011)

Customer Category	Tariff Level	Comment
Average tariff (including taxes)	FCFA106.5/kWh USc21.3/kWh (2009)	
CEET Low Voltage (LV) customer	FCFA111.6/kWh USc22.3/kWh	Varying with consumption level. Latest adjustment in November 2010, effective January 1, 2011
CEET Medium Voltage (MV) customer	FCFA99/kWh USc19.8/kWh	Varying if Free Economic Zone or not. Tariff varies with-time-of-day: Peak: 6pm-11pm; Off-Peak: 11pm-6am
CEB Tariff to the Distributing Companies: CEET (Togo) and SBEE (Benin)		
	FCFA 55KkWh USc11/kWh	

1 US\$=500 FCFA

7. **CEET Tariffs.** Tables 14 and 15 below depict the evolution of the low-voltage and medium-voltage tariffs over the 2009-2011 period.

Table 14: Evolution of Electricity Tariffs in FCFA (2009-2011)

		FCFA/KWh	
AVERAGE REVENUE	2009	2010	2011
Low Voltage Customers	90.8	90.7	111.6
Medium Voltage Customers	82.0	89.8	99.0
Average	87.5	90.4	106.5

Table 15: Evolution of Electricity Tariffs in US\$ (2009-2011)

	USc/ KWH		
AVERAGE REVENUE	2009	2010	2011
Low Voltage Customers	18.2	18.1	22.3
Medium Voltage Customers	16.4	18.0	19.8
Average	17.5	18.1	21.3

1 US\$ = 500 FCFA

8. **CEB Tariffs.** In July 2009, CEB's tariffs to CEET (and to SBEE – Benin) were also adjusted from FCFA50/kWh (USc10/kWh) to FCFA55/kWh (USc11/kWh) to reflect the cost increases of the electricity imported from Nigeria and Ghana by CEB³⁶.

9. As indicated in Chapter VII (Financial Assessment of Togo's Electricity sub-sector), CEET current tariff levels are too low on average as the utility can barely cover its costs, and cannot contribute adequately to the mobilization of the financing required for executing the investment program. Private sector investors (such as IPPs) will therefore seek additional comfort and guarantees from the Government (see Chapter VI Financial Analysis). Furthermore, the tariff challenge will get more acute over time as CEET's generation and import costs are expected to increase over time and are not geared to quickly reflect changes in the prices of fossil fuels (see Chapter IV – Demand and Supply Balance).

10. Therefore, the delineation of a clear tariff policy accompanied by a comprehensive financial and tariff study should be carried out as soon as possible covering CEET's services (and may be other services such as rural electrification) together with the investment study proposed in Chapters IV and VI. Such policy formulation and financial analysis should also be coordinated with CEB's own review and modeling of its financial outlook including in particular the impacts of likely tariff adjustments to be expected from Nigeria and Ghana, and the incorporation of Adjarala's in-service costs.

C. Main Challenges and Recommendations

11. Regarding electricity tariffs, the following main issues will need to be resolved in the short term by GOT, with the participation of CEET and possibly CEB:

- a. delineation of a transparent electricity tariff policy covering the operations to be carried out by CEET and by potentially other operators in particular in rural areas³⁷;
- b. in addition to clarifying the policy, a tariff study should be carried out to: (i) address the required level of tariff and the tariff structure taking affordability into account; (ii) develop a mechanism to quickly reflect changes in imports and fuel costs (natural gas, HFO and diesel oil); and (iii) delineate pricing policies regarding rural electrification and renewable energies³⁸;
- c. the financial and tariff study should be carried out for CEET's services in parallel with the investment study proposed in Chapter VI. Based on this study, the Government will decide how best (from the economic and political perspectives) to ensure the financial viability of the sub-sector (solely through tariff adjustments, a combination of budget transfers and tariffs adjustments, financial restructuring, etc.);

³⁶ For CEB industrial customers, in July 2009 tariffs were also increased from FCFA54/KWh to FCFA61/KWh.

³⁷ Tariff issues are not discussed in the recently drafted Energy Policy document.

³⁸ Many countries have adopted a feed-in tariff approach differentiating tariff by technology.

- d. clarification regarding the respective roles of CEET and ARSE in the assessment of the revenues requirements and potential adjustments in retail tariffs;
- e. CEET's next Performance Contract (current performance Contract expires end- 2013) should delineate the following. Such effort should be initiated before the end of 2012: (i) a clear tariff policy set out by the Government; (ii) CEET financial objectives; (iii) tariff adjustment mechanism (applied on a bi-annual or quarterly basis; (iv) the Government and CET's responsibilities to ensure that the policy and objectives are implemented; and (v) the related institutional arrangements, notably the respective monitoring roles of ARSE and CEB;
- f. an in-depth financial analysis (consolidated with CEB's own financial analysis). The state-of-the-art financial modeling tool recently provided to the MME should be a key tool for this exercise;
- g. a tariff and incentives policy should also be developed to promote renewable energies, and off-grid rural electrification, in close participation with the key stakeholders (in particular communities, private sector). This effort should benefit from the experiences accumulated by developed and emerging economies regarding pricing and incentives for renewable energies; and
- h. a comprehensive and sustained information and communication effort towards CEET's customers and the other stakeholders should also accompany the actions related to tariffs.

CHAPTER VI - INVESTMENT PROGRAM AND FINANCING

1. This chapter VI presents the investment program of CEET and other investments impacting Togo's electricity sub-sector, the financing requirements and the financing secured so far, and discusses investment challenges and priorities.

A. Investment Program

2. Togo's electricity sub-sector is impacted by the investment program of various partners, such as those of CEET and CEB, and other investments in the region in particular investment part of the West Africa Power Pool program (WAPP), and by private sector investments in particular in generation.

3. **CEET's Investment Program (2010-2015).** CEET's five year investment program for the period 2010-2015 is provided in table 16 below. The program of FCFA91.1 billion excluding taxes and 2011 costs (US\$182 million) includes: (i) FCFA74.1 billion (US\$148 million) for improving access and the quality of service by strengthening and extending the distribution networks throughout the country; investment in distribution represents 81 percent of CEET's program reflecting the fact that CEET is focused on distribution; and (b) FCFA17 billion excluding taxes (US\$34 million) i.e 19 percent for the rehabilitation of existing hydroelectric plants and the development of two hydro sites. The investment program calls for 95 percent of the investments to be financed by the Donors and 5 percent by CEET (FCFA4.5 billion).

Table 16: CEET 2010-2015 Investment Program

Program/Project	Amount in million fcfa (excluding Taxes)	Financing Plan Million FCFA	
		Donors (95%)	CEET (5%)
I. Improving Electricity Access	74 118	70 412	3 706
Extension of the distribution network in peri-urban areas of Lome and six urban centers	22 331	21 119	1 212
Strengthening, Rehabilitation and Extension of the sub-transmission network	15 001	14 251	750
Strengthening of the Medium Voltage and Low Voltage Networks	1 890	1795	95
Rural Electrification – Phase II	27 480	26 106	1 3744
Improvements in Commercial Management	7 116	6 760	356
Human Resources Strengthening	300	285	15
II. Renewable Energies	16 975	16 126	849
Development of micro hydroelectric sites	14 458	13 735	723
Rehabilitation of the Kpime dam	2 517	2 391	126
TOTAL INVESTMENT	91 093	86 538	4 555

4. Three issues need to be highlighted regarding the above mentioned investment program: (i) most of the investment in generation is expected to be provided through CEB or the private sector; (ii) the strengthening and expansion of the transmission system is expected to be provided mostly by the WAPP and CEB; and (iii) currently CEET operates with a 5-year investment program but has no long term master plan for generation and transmission investment to guide decisions and priorities. These issues need to be quickly remedied by CEET and the Government; proposals are made in section C below.

5. **CEB's investments.** CEB is currently overseeing the preparation of the feasibility and the economic assessment for the Adjarala hydroelectric plant (147MW), estimated to cost about (US\$380 million). Adjarala's commissioning date is expected to be 2018.

6. **Regional Transmission Investments,** including the 330kV transmission system between Nigeria and Cote d'Ivoire, are included in the WAPP program.

7. **Private Sector Investment.** As discussed earlier, the Government recently signed (April 2012) a concession agreement with DeltaWind for a wind farm of an installed capacity of 24 MW ³⁹ to be commissioned in 2014. The Contour Global concession foresaw the possibility of a Phase II.

B. Sources of Financing

8. As mentioned above CEET's investment program (mostly focused on distribution) is estimated to cost FCFA91 billion in 2011 costs (US\$182 million) with 95 percent to be financed by multilaterals (BOAD, BIDC, World Bank, etc.), and bilateral agencies.

9. **Financing for Adjarala Hydro.** Total investment for the 147MW plant is now estimated to be US\$380 million. Discussions are ongoing with bilateral and multilateral agencies to mobilize the financing and ensure commissioning by 2018.

C. Main Challenges and Recommendations

10. As indicated earlier, Togo's electricity sub-sector suffers from years of underinvestment that created a substantial gap between demand and supply and a deterioration in the quality of service.

11. The implementation of the national and regional investment program related to Togo's electricity sub-sector involves a combination of investment in generation, transmission and distribution to be carried out by various domestic and regional actors: CEET, CEB including the WAPP investments and by the private sector, and many financiers.

12. Substantial financing (about 95 percent) will have to be mobilized from multilateral and bilateral development agencies and the private sector. Most of the investment in generation is expected to be mobilized through CEB, the West Africa

³⁹ Firm capacity expected to be in the order of 5-6MW.

Power Pool and a substantial share of this through the private sector. As indicated in Chapter IV, Togo will need to secure about 20-25MW per year i.e 120-125MW over the next five years assuming a base case 8 percent growth in demand, and there are risks that this may be challenging and costly. Electricity demand could also grow faster if the economy picks up putting even more stress on investment financing and implementation capacity.

13. To maximize the chances of mobilizing the required financing and implement its investment program within the expected implementation schedules and managing the risks of deterioration in the quality of the services, it is recommended that Togo, under the leadership of the Minister in charge of electricity, tackles the short-medium term and the long term challenges in parallel.

14. Short-term, the following areas of actions are proposed:

- a. **Investment Priorities.** The Government and CEET should rank the investments by order of implementation priorities, most likely placing additional investment in generation and in regional transmission strengthening as priority investments. Criteria for establishing such priority list should be: importance of the investment, financing availability and complexity of mobilization, probability of timely commissioning and risks of slippages, consistency with medium/long term plans of CEB, WAPP, financial impacts on CEET and the Budget, etc.
- b. **Immediately discuss with CEET and CEB, the 3-5 year coherent generation and transmission** options and agree on a base case and alternatives to ensure that adequate generation is available to Togo, and develop back-up plans (technical and financial). The Planning Directorate of MME (“Direction de la Planification”) with the help of consultants should be tasked to submit a feasible plan within the next 6 months (see Chapter III). The short-term plan should address the technical aspects (sources of generation, transmission investment), financing and financial impacts (as this may impact on CEET’s finances).
- c. In view of the fact that some investment and financing will be carried out by the private sector (notably for generation), Togo should immediately reassess and most likely upgrade its PPP framework to attract investors by removing key barriers, preparing sample contracts and implementing regulations. This enhanced PPP framework should also cover investments in renewable energies and off-grid rural electrification outside CEET’s mandate. PPIAF grant financing could be used for such work.
- d. As discussed earlier, Togo would also need to quickly resolve the issues related to the sub-sector medium/long term financial equilibrium, the tariff policy and CEET’s tariff levels. The proposed financial and tariff study (see Chapter V) should also assess affordability and develop a corresponding tariff schedule. It should also be linked with the financial analysis and modeling efforts to be carried out by CEB.
- e. Strengthen the existing institutions and provide adequate resources (financial and managerial resources for project preparation and project implementation)

to guarantee that the projects included in the investment program are prepared within the agreed-to schedules.

- f. Set-up and resource a Task-Force to assess and manage the electricity supply generation issues discussed above.

15. For the medium-Long term, the following areas of actions are proposed:

- a. Together with CEB (and WAPP) develop a 20-year reference master plan for generation and distribution development, and decide which investments (typically generation) could be financed by the private sector and which ones would be financed by the Donors.
- b. Together with CEB put in place the planning and financially modeling tools required to manage technically and financially the sub-sector.

**CHAPTER VII - FINANCIAL ASSESSMENT OF TOGO'S
ELECTRICITY SUB-SECTOR**

1. This chapter VII reviews the current financial situation of CEET's and assesses the financial outlook for the electricity sub-sector over the next 10 years (2012-2022). Key actions to be considered to ensure the sub-sector financial viability and its development are also proposed.

A. CEET 2008-2011 Financial Performance

2. CEET's key financial data for the 2008- 2011 period ⁴⁰ are provided below in table 17. Annex 7 also provides a summary of CEET's Profit and Loss Statement for the 2006-2009 period.

Table 19: CEET: Key Financial Data for 2008 - 2011

Topic	2008	2009	2010	2011
Operating Revenues (GFCFA)	49.9	56.4	71.3	95.5
Sales of Electricity (GFCFA)		49.4	57.4	80.1
Other Revenues (GFCFA)		3.5	7.5	121.6
Operational Subsidy from Budget (GFCFA)		3.5	6.4	3.0
Expenses	49.9	56.3	75.1	93.1
Energy Purchases (CEB, Contour Global)			42.8	61.1
Fuel Costs			7.3	7.4
Other expenses (Labor, other services, depreciation, etc.)			25.0	24.6
Net Result	--	.1	-3.8	+2.4
Quantities of Electricity Sold (GWh)	507	564	635	686
Average Revenue on Electricity Sales (FCFA/kWh)		87.5	90.4	106.5
Average Revenue on Electricity Sales (USc/kWh)		17.5	18.1	21.3
Average Cost of Service (FCFA/kWh)	98.4	99.8	118.3	135.7
Average Cost of Service (USc/kWh)	19.7	20.0	23.7	27.1
Purchase Price from CEB (FCFA/kWh)		50	55	55
Transmission and Distribution Losses		21%	20%	24%
Collection Rate		88% (2)	89.5%	86%
Cash Recovery Index (CRI)		64	72	65

1 US\$ = FCFA500

Source: CEET's Accounts

⁴⁰ Fiscal Year ending December 31.

3. As shown in the above table CEET's electricity sales have increased very rapidly (at about 9 percent in volume since 2009 and 16 percent in value). The cost of service has also increased rapidly. The energy purchased from CEB and Contour Global in 2011 represented 72 percent of CEET's revenues, highlighting the importance of a tariff mechanism able responding quickly to changes in costs of imports and fuel costs as Contour Global charges are linked to fuel costs (HFO and gas).

4. In 2011, CEET's financial situation improved mostly because of: (i) the effects of the tariff increase decided in November 2010 having a full effect in fiscal year 2011; (ii) the sale of part of Contour Global PPA to CEB representing about FCFA 10 billion of revenues for CEET; and (iii) the operational budget subsidy of about FCFA 3 billion.

5. However over the last 4 years CEET's financial performance has not been strong (CEB is just breaking-even financially in 2011), despite some level of budget transfers, and effective January 2011 the tariff increase applied mostly to medium voltage customers. It should also be noted that: (i) CEET's finances are heavily impacted by changes in the export prices of Nigeria and Ghana and by the variations in international prices of fossil fuels as power purchases from CEB (and indirectly from Nigeria and Ghana) and from the producers (Contour Global in particular) accounted for 70 percent of CEET's expenses; and as a result (ii) CEET's has limited financial flexibility.

6. One impact has been that CEET was not able to self-finance even a small share of the investment, and is planning to rely heavily (95% financing – See Chapter VI) on Donors' financing.

7. ***The Contract.*** As in similar arrangements, a 100MW PPA with a Take-or-Pay clause was negotiated and signed with the Independent Power Producer (IPP) Contour Global. However, in 2010 and 2011, Contour Global delivered respectively 30 percent and 9 percent of the available energy amounts⁴¹, which, once fixed capacity charges are factored in, led to a very high unit cost per energy unit delivered (in the order of FCFA300/kWh). Hence CEET worked towards sharing some of the PPA with CEB and is supporting a refinancing of Contour Global commercial debt.

B. CEET's Financial Outlook 2012-2022

8. The level of the future expenses and the financial outlook for Togo's electricity sub-sector will be for a large part impacted by: (i) the cost of electricity imports and of domestic (thermal) generation, itself partly reflecting international prices for oil and gas, and the impacts of Contour Global fuel costs on CEET's operations; (ii) the decisions regarding tariffs levels; (iii) the levels of transfers/subsidies that could be required from the Budget; and (iv) CEET progress in reducing losses and improving collection.

⁴¹ In 2010, Contour Global delivered to CEET 47.7 GWh and in 2011 67 GWh out of an available amount of 769.3 GWh. Such current low plant factor has a huge bearing on CEET's finances.

9. **Costs of IPPs and Imports.** Looking forward, two periods should be considered when assessing CEET's future financial outlook. The *next five years* (the 2012-2017/18 period) where the most likely additional generation option available will be from Contour Global (HFO based) or from other thermal plants (for example in Benin), and *beyond 2017/18* with the expected commissioning of the CEB Adjarala hydro (however Adjarala will provide Togo with only 70MWs firm as it is shared with Benin) and with the availability of additional volumes of natural gas expected to be delivered through the West African Gas Pipeline (WAGP).

- a. *At least for the next 5 years (2012-2017/18)*, until the commissioning of the Adjarala hydro and availability of an increased volume of natural gas:
 - i. Contour Global's generation will increase using HFO. Contour Global fuel costs are estimated to be FCFA75/kWh; current total costs (fixed and variable) are estimated to be about FCFA120/kWh assuming full load.
 - ii. New thermal IPPs (about 250MW) under discussion in Benin could provide electricity at about FCFA 60-70/kWh if natural gas from Nigeria is available. If no additional natural gas delivery is made, these IPPs will use HFO or diesel oil.
 - iii. Current CEB's tariff to CEET are about FCFA 55/kWh. This level of tariff however does not allow CEB to show an operating profit.
- b. *Beyond 2017-18*, the commissioning of Adjarala hydro (providing Togo with about 70MW and 180 GWh/year) at an estimated total financial cost of FCFA55/kWh (depending on the financing terms and revised all-in costs) and the availability of relatively cheap natural gas ⁴² should put downward pressure on Togo's electricity costs.

10. **Outlook for CEET's Cost of Service.** It is therefore likely that CEET cost of service will continue to increase from the already high FCFA141/KWH (US\$c28/kWH) in 2011.

11. **Other Domestic Generation Options for Togo.** Other hydro sites located within Togo's territory have been assessed during the 1980-1990 period, such as Tetetou on the river Mono (24MW), and on the Oueme river in Benin, and some of them are included in CEET's investment program. Some of these sites are included in CEET's investment program (see Chapter VI). These sites appear an attractive option to partly contain increases in generation costs. The feasibility studies need however to be updated to firm up the investment costs and reassess their economic and financial viability in today's and tomorrow's environment.

12. **CEET's May 2010 Business Plan.** Taking into account the various cost drivers facing its operations, in May 2010 CEET proposed the following measures to ensure its financial viability:

- a. a tariff increase of 25.5 percent for low voltage customers effective July 2010;

⁴² However in 2012, N-gas Limited was delivering gas to CEB at US\$7.9 perMMBTU.

- b. an increase of 13 percent for medium voltage customers effective January 2011;
- c. reselling part of the Contour Global PPA (about one third, 30 MW) to CEB in the current institutional arrangements as it is currently not fully used by CEET;
- d. improving the utility distribution performance, in particular regarding metering and distribution losses, and globally meeting the benchmarks of CEET's Performance Contract; and
- e. working with the MME on a tariff adjustment mechanism, to reflect in particular changes in fuel costs.

C. CEB's Financial Situation

13. CEB financial situation and its ability to mobilize financing and develop/commission the generation and transmission projects needed by Benin and Togo, is critical for Togo. Table 18 below provides key financial data for CEB for the period of 2008 to 2011.

Table 18: CEB's Financial Situation – 2008-2011 (Million US\$)

	2008	2009	2010	2011
Energy Sales (Purchased by CEB)	126.9	159.0	175.5	209.8
Energy Sales (Generated by CEB)	16.9	23.3	23.8	27.1
Other Revenues	0.3	0.4	0.4	1.0
Total Revenues	144.0	182.6	199.7	237.9
Net Operating Revenue	30.4	33.6	37.0	26.1
Net Profit (Loss)	6.1	4.4	3.8	-7.3
KEY FINANCIAL RATIOS				
Profitability Ratio (Net Income/Turnover)	1.5%	2.4%	1.9%	-2.6%
Liquidity Ratio (Short term assets/Short term debt)	2.7	1.5	1.5	1.3
Debt/Self Financing Capacity	10	8	7.3	7.3
Debt/Equity Ratio	77.0%	67.0%	63.0%	74.0%

Source: CEB Annual Reports, Fiscal Year ending December 31

14. The above table shows that CEB's is just breaking even financially despite the tariff increase of 10 percent enacted in July 2009 (from FCFA 50/kWh to FCFA55/kWh for the two distribution companies). This is due to CEB high dependency on purchases from Ghana and Nigeria, as in 2010 CEB imports represented about 88 percent of its sales. As for CEET, a clear tariff policy and an adjustment mechanism - to quickly reflect changes in the cost of imports - are critical, as is CEB's ability to carry out financial modeling and scenario analysis. In 2011, CEB's financial situation deteriorated with a US\$ 7.3 million loss.

D. Main Challenges and Recommendations

15. CEET's financial situation is not strong, very much tied to decisions outside its borders particularly by Nigeria and Ghana for electricity export prices and international prices of fossil fuels. It is likely that it will deteriorate if decisive actions are not carried out by the Government, in particular with respect to retail electricity tariff policy. Ensuring the financial equilibrium of Togo's electricity sub-sector, and the mobilization of the financing called to implement a large investment program (Chapter VI) is currently and will become even more critical in the coming months. This issue has potentially very large consequences as it will impact Togo's economic and social development, may require large transfers of scarce budget resources (clearly a last resort option), and importantly will limit Togo's ability to mobilize financing, notably from the private sector.

16. With respect to the financial equilibrium of Togo's electricity sub-sector and of CEET, the following actions are recommended:

- a. CEET and CEB should jointly develop a consolidated financial analysis using a state-of-the art financial model, and the modeling capacity to quickly and comprehensively assess in a coherent and transparent way the financial outlook of CEET and options, and delineate the actions required to ensure the financial equilibrium of the sub-sector. The interested financiers of the sub-sector should participate in this effort. The PPIAF facility could potentially finance this activity.
- b. A discussion paper and policy note should be prepared by MME with the support of CEET and CEB, and discussed in Cabinet, on electricity tariffing and the sub-sector financial outlook. This should be based on the above mentioned detailed financial analysis carried out by CEET and CEB, and on a least-cost electricity supply plan.
- c. CEET should continue optimizing the Contour Global PPA, by transferring unused part of the PPA to interested parties at least for a few years, such as to CEB for the benefit of Benin, or by discussing with the commercial lenders avenues to refinance the commercial debt. The related decisions would be informed by the conclusions of the recommended generation and transmission master plans.
- d. CEET should aggressively: (i) reduce its transmission and distribution losses (24 percent in 2011, 20 percent in 2010) towards meeting the objectives of the performance contract (the performance contract ending end 2013 proposed losses of 16.5 percent for 2013); as well as (ii) increase its collection performance. In particular the Government should ensure that the public sector pays its electricity bills. This could have quick cash flow benefits.
- e. MME and CEET should assess Togo's most promising hydro sites, including the rehabilitation or upgrading of existing sites, by carrying out feasibility level studies covering the technical, the environmental and social and the economic and financial impacts.
- f. The financing for the rural electrification program and investments mandated by the Government should be provided by the Government.

CHAPTER VIII - SUMMARY OF THE RECOMMENDATIONS

1. This chapter VIII compiles the recommendations proposed throughout the report with respect to: (i) the energy policy and strategy (Chapter I); (ii) the institutions and the regulatory framework (Chapter III); (iii) the electricity demand and supply (Chapter IV); (iv) the electricity tariff (Chapter V); (v) the investment program and its financing (Chapter VI); and (vi) the financial assessment of the electricity sub-sector (Chapter VII). See Annex 11 for the action plan for the implementation of the main recommendations.

A. Energy Policy and the Electricity Sub-Sector (Chapter I)

2. With respect to the Energy Policy and Strategy, the following aspects impacting on the electricity sub-sector should be more clearly addressed:

- a. **Electricity sub-sector financial equilibrium.** This is a key issue that if not addressed could render the mobilization of the investment financing more difficult and costly. IPPs in particular would expect the sub-sector to be financially self-sufficient. This would help minimize the level of explicit or implicit guarantees expected from the State.
- b. **Energy pricing policy and tariffs.** The new policy should also clarify the guiding principles and the implementing details regarding energy pricing policy in general, and more specifically the reviews and adjustment of electricity tariffs.
- c. **Delivery mechanisms and financing of Rural Electrification (RE).** As increasing access to electricity services in rural areas is sought, the draft Energy policy should delineate the proposed new approaches and the delivery mechanisms and the RE financing mechanism to account for affordability and sustainability issues.
- d. **Regulatory framework for the mobilization of private sector financing in the electricity sub-sector as well as for petroleum, and renewable energies.** The regulatory framework for public private partnership (PPP) should be enhanced to attract investors, and relevant sample contracts and applicable procurement procedures be made available.
- e. **Framework and incentives for the development of renewable energies, including Togo's hydroelectric potential.** An inventory of Togo's hydroelectric potential was made in 1984 and would need to be updated to optimize design, update costs and financing requirements, determine the level of priority, assess the risks and the mitigation measures required and the appetite of the private sector.
- f. **Mechanism to improve the effectiveness of regional cooperation.** Togo, Benin and CEB together with the Donors should set-up a mechanism to ensure that regional projects which are complex and with long lead time (such as the Adjarala hydroelectric plant – 147MW) are built on time and within budgets.

B. Institutions and Regulatory Frameworks (Chapter III)

3. Togo's electricity subsector is subject to national, regional and international regulations, sometimes conflicting and hampering the development of the sub-sector. Benin and Togo also created CEB, the bi-national utility own by Togo and Benin, with its own set of regulations that evolved over time.

4. There are inconsistencies between the various regulatory frameworks (particular between the ECOWAS framework, the CEB Benino-Togolais Code, and Togo's own regulations and this would need to be resolved. For Togo's electricity subsector the key institutional and regulatory issues are related to the overall sub-sector structure and the constraints it puts on Togo's ability to secure its requirements (domestic generation or imports) and to an underdeveloped regulatory framework and institutions.

5. The main recommended areas of actions at the institutional and regulatory levels are therefore related to:

- a. the sub-sector structure in particular: (i) the transformation of the bi-national entity CEB and the revision of CEB's Code; (ii) the strengthening and transformation of the sub-sector regulatory entity, ARSE; and (iii) the institutional mechanisms to increase access to electricity in rural areas; and
- b. the regulatory framework and the implementing regulations regarding: (i) Public Private Partnerships (PPPs); (ii) tariff setting and adjustments; (iii) the development of rural electrification; and (iv) the promotion of renewable energies.

Electricity Sub-Sector Structure

6. ***Transformation of CEB's Role and Revision of the Benin-Togo Electricity Code ("Code Benino-Togolais de l'Electricité")***. As mentioned above there are discrepancies between the existing regulatory framework (particularly with respect to CEB) and the commitments made by Togo (and Benin) towards ECOWAS and WAEMU. While not all the details pertaining to the regional electricity market are known now as they are still under development, Togo's should be proactive. To be aligned with its regional commitments, it is recommended that Togo works towards:

- a. transforming CEB into a regional utility without exclusivity rights, (i) owning and managing the transmission assets of the two states and some common generation assets (Nangbeto hydro, upcoming Adjarala hydro)^{43 44}; and (ii) responsible for the dispatching on the Togo-Benin transmission network;

⁴³ In all scenarios, CEB would need to segregate/separate its generation from its transmission functions, and to keep separate accounts for the generation activities and for the transmission activities. This would be essential to determine the wheeling charges on the CEB transmission network.

⁴⁴ Some common generation asset could also be built and managed by the private sector under BOO, BOT and other arrangements.

- b. CEET owning the distribution assets in Togo, fully responsible for distribution and as needed generating from its own facilities and contracted IPPs. Management contract or technical assistance for CEET; and
 - c. generators, within Togo or ECOWAS benefitting from the non-discriminatory and open-access to CEB transmission system as envisioned under the ECOWAS treaty, and able to contract directly with any power distribution companies or large customers.
7. This may be implemented in phases. Phase I could be as follows:
- a. elimination of CEB's sole buyer provision in the CEB Code, allowing for entry of independent power producers operating on a country basis or on a sub-regional level;
 - b. confirmation that, for the regional generation projects under development such as the Adjarala hydroelectric project, CEB will be the developer or the off-taker;
 - c. authorization provided to CEET, independent power producers and other producers with surpluses, to export power using CEB's transmission network, and sell power to the distributing utilities and large customers. The tariff studies proposed for CEB and the accounting separation of the generation and transmission assets and expenses (see below) will be needed for a fair and transparent determination of the wheeling charges;
 - d. accounting "Separation" of CEB's generation and transmission activities in order to determine clearly the transmission costs and to lay out transmission pricing for the CEB network; and
 - e. development of relevant regulations such as a Transmission Network Code ("Code Réseau de Transport") in conformity with the ECOWAS principles, etc.

8. ***Strengthening and Transformation of ARSE's modus operandi and role.*** In an expanding electricity subsector with more national and regional participants, Togo's regulatory authority (ARSE) needs to be reformed and expanded to: (i) increase its autonomy from the Ministry in charge of energy, for example by indicating that the regulators are « nominated » by the President of the Republic, cannot be civil servants, etc.; (ii) ensure an unbiased perspective with respect to public entities (such as CEET, CEB) or private entities (independent producers, possibly small distributors in rural areas, and with respect to national or regional entities); (iii) task ARSE to review regularly the financial situation of the regulated entities and CEB and submit proposals with respect to the application of the agreements, and the electricity tariffs; and finally (iv) ARSE's role should also be expanded to cover renewable energies, rural electrification and the use of natural gas for electricity generation.

9. ***Strengthening the Planning Unit of the Ministry responsible for electricity.*** To meet the objectives of the Energy Policy and Strategy, in particular increased access, catch-up on the under-investment of the past years and to ensure the least-cost development of the sub-sector in a timely manner, a very ambitious investment program has been developed to be carried out by various actors: Togo's domestic utility (CEET), the bi-national power entity (CEB), and also by other entities. Coordinating the investment effort (preparation, financing mobilization, implementation) requires expertise and resources. The Ministry of Energy should therefore assess the capacity and the financial resources available to its Planning Directorate ("Direction de la Planification") to design and implement the investment program.

10. ***Developing access to electricity services in rural areas.*** Increasing access to electricity services in rural areas is a key objective of the Government. Decisions will need to be made regarding the preferred institutional set-up and the policy and regulatory frameworks (see also Chapter IV). This would require discussions on the pros and cons of alternative levels of service and of delivery models informed by the experiences of other countries and decisions on one or a few models, possibly creating a rural electrification agency and a rural electrification fund (or an energy fund).

Regulatory Framework and Implementing Regulations

11. ***Togo's Relevant Regulations.*** The following adjustments on Togo's electricity sub-sector regulations are proposed in part to support the implementation of Togo's Energy Policy and Strategy (Chapter I):

- a. ***Opening-up the options for private sector participation.*** Article 23 of Law 2002/012 of July 2000 refers to concession agreements ("conventions de concession"). Referring only to concession is very restrictive as other arrangements have been implemented in other countries. This may be particularly relevant for new rural electrification mechanisms.
- b. ***Tariff Setting and Tariff Adjustments.*** Regarding the regulatory framework on electricity tariffs, the main issues to be resolved in the short term by GOT, with the participation of CEET and possibly CEB relate to the tariffs setting and the tariffs adjustments (Electricity tariff issues are discussed in more details in Chapter V): (i) delineation of a transparent electricity tariff policy covering the operations to be carried out by CEET and by potentially other operators in particular in rural areas; (ii) clarification regarding the respective roles of CEET and ARSE in the periodic review of the revenue requirements (Utility and subsector as a whole) and adjustments in retail tariffs; and (iii) a tariff and incentives policy to be developed to promote renewable energies, and off-grid rural electrification.
- c. ***Developing access to electricity services in rural areas.*** This would require a decision on one or a few models to be implemented and the development of a set of implementing regulations and documentation.

- d. *Promoting renewable energies*, as part of the GOT's diversification strategy. This would likely require a specific set of tariff setting principles and implementation guidelines (technology based feed-in tariff or other approaches), fiscal and accounting regimes and incentives, etc.⁴⁵; and
- e. *Promoting energy efficiency*, particularly with respect to electricity through economic incentives for private sector investment and operations, and other budgetary means for public sector entities.

C. Electricity Demand and Supply (Chapter IV)

12. To meet the key challenges of ensuring an adequate and reliable supply of electricity over the next 10 years, and increasing access to electricity services in a context of increasing internal demand and reduce availability from neighboring countries, Togo needs to be focused and proactive. Substantial private and public financing will need also to be mobilized over the next 10 years and the sub-sector financial equilibrium will need to be secured through adequate tariffing.

13. The key challenges and recommendations facing Togo's electricity sub-sector and the Ministry responsible for Electricity can therefore be regrouped in four broad categories: (i) implementing investment in generation, transmission and distribution and in personnel; (ii) increasing access to electricity services; (iii) ensuring the financial equilibrium of the sub-sector, CEET and CEB, and reviewing the tariffs; and (iv) adjusting the regulatory framework to account for internal and regional requirements. This is discussed in the following sections.

14. ***Implementing investment in generation, transmission and distribution and in personnel.*** This would include:

- a. improving the quality of supply (imports and distribution) by rehabilitating, strengthening and extending CEET's distribution networks;
- b. developing a generation and transmission master plan, to firm up priorities, including reassessing the technical, economic and financial viability of Togo's medium size hydro plants, and adopting a short-term supply management plan;
- c. for the Adjarala hydro project (147MW), accelerating the completion of the technical, economic, environmental and social and financial studies, the definition of the implementation arrangements and the mobilization of financing;

⁴⁵ Various rural electrification philosophies and approaches have been developed and tested over the last 10 years.

- d. mobilizing the Governments and ECOWAS to secure and speed-up the delivery of natural gas from Nigeria through the WAGP pipeline, as this is one of the cheapest supply options, and would also diversify the energy matrix; and
- e. defining and mobilizing financing for capacity building and technical assistance in the Ministry of Energy and CEET.

17. ***Increasing access to electricity services***, in the urban/peri-urban and rural areas. This would include the delineation and feasibility level preparation by:

- a. CEET, of an access and quality strengthening program for the main cities; and
- b. the Government, of a rural electrification program promoting innovative approaches based on decentralized and small scale operations. To significantly increase access to electricity services in rural areas, many countries (but not all) ⁴⁶ have decided to: (a) set-up new institutions such as a Rural Electrification Agency focusing solely on rural electrification and delivering the services using a mix of service providers (small private enterprises, NGOs, communities, etc.), proposing various levels of services and of tariffs, supporting productive activities, and financing of the up-front investment; and to (b) let the main power utility concentrate on urban/peri-urban areas with different tools. Togo should benefit from the experiences of emerging economies and design a RE strategy and an implementation plan that meets its objectives and traditions, and ensure sustainability.

18. ***Ensuring the financial equilibrium of the sub-sector, CEET and CEB, and reviewing the tariffs***. This would include:

- a. a thorough analysis of the investment programs (including of CEET and of CEB);
- b. a detailed financial and tariff analysis together of CEET and CEB, building up on the financial modeling tools now available to CEET; and
- c. a transparent and open framework for all the stakeholders to participate in the initial design and in the development of solutions.

19. ***Adjusting the regulatory framework to account for internal and regional requirements***. This would include (*see also Chapter III – Institutional and Regulatory Frameworks – for more details*):

⁴⁶ Mali, Senegal, Cameroon, to name a few, have created rural electrification agencies and rural electrification funds. Other countries such as Ethiopia are implementing their rural electrification program through the national power utility.

- a. deciding and adjusting if necessary the regulatory framework including amendments to the Benin-Togo Electricity Code (“Code Benino-Togolais de l’Electricité”) applicable to CEB to align it with Togo’s commitments with ECOWAS and WAEMU (see Chapter III);
 - b. increasing the autonomy and capacities and reviewing the modus-operandi regarding the regulator, ARSE; and
 - c. strengthening and adopting a new PPP framework and key implementing regulations, covering also renewable energies and rural electrification.
20. **Others.** Delineating an energy efficiency and demand management program through first a feasibility study covering the priorities areas, assessing the benefits and costs, the financing requirements, the sustainability of such program and the implementation arrangements.

D. Electricity Tariffing (Chapter V)

21. Regarding electricity tariffs, the following main issues will need to be resolved in the short term by GOT, with the participation of CEET and possibly CEB:
- a. delineation of a transparent electricity tariff policy covering the operations to be carried out by CEET and by potentially other operators in particular in rural areas⁴⁷;
 - b. in addition to clarifying the policy, a tariff study should be carried out to: (i) address the required level of tariff and the tariff structure taking affordability into account; (ii) develop a mechanism to quickly reflect changes in imports and fuel costs (natural gas, HFO and diesel oil); and (iii) delineate pricing policies regarding rural electrification and renewable energies⁴⁸;
 - c. the financial and tariff study should be carried out for CEET’s services in parallel with the investment study proposed in Chapter VI. Based on this study, the Government will decide how best (from the economic and political perspectives) to ensure the financial viability of the sub-sector (solely through tariff adjustments, a combination of budget transfers and tariffs adjustments, financial restructuring, etc.);
 - d. clarification regarding the respective roles of CEET and ARSE in the assessment of the revenues requirements and potential adjustments in retail tariffs;

⁴⁷ Tariff issues are not discussed in the recently drafted Energy Policy document.

⁴⁸ Many countries have adopted a feed-in tariff approach differentiating tariff by technology.

- e. CEET's next Performance Contract (current performance Contract expires end- 2013) should delineate the following. Such effort should be initiated before the end of 2012: (i) a clear tariff policy set out by the Government; (ii) CEET financial objectives; (iii) a tariff adjustment mechanism (applied on a bi-annual or quarterly basis); (iv) the Government and CET's responsibilities to ensure that the policy and objectives are implemented; and (v) the related institutional arrangements, notably the respective monitoring roles of ARSE and CEB;
- f. an in-depth financial analysis (consolidated with CEB's own financial analysis). The state-of-the-art financial modeling tool recently provided to the MME should be a key tool for this exercise;
- g. a tariff and incentives policy should also be developed to promote renewable energies, and off-grid rural electrification, in close participation with the key stakeholders (in particular communities, private sector). This effort should benefit from the experiences accumulated by developed and emerging economies regarding pricing and incentives for renewable energies; and
- h. a comprehensive and sustained information and communication effort towards CEET's customers and the other stakeholders should also accompany the actions related to tariffs.

E. Investment Program and Financing (Chapter VI)

22. As indicated earlier, Togo's electricity sub-sector suffers from years of underinvestment that created a substantial gap between demand and supply and a deterioration in the quality of service.

23. The implementation of the national and regional investment program related to Togo's electricity sub-sector involves a combination of investment in generation, transmission and distribution to be carried out by various domestic and regional actors: CEET, CEB including the WAPP investments and by the private sector, and many financiers.

24. Substantial financing (about 95 percent) will have to be mobilized from multilateral and bilateral development agencies and the private sector. Most of the investment in generation is expected to be mobilized through CEB, the West Africa Power Pool and a substantial share of this through the private sector. As indicated in Chapter IV, Togo will need to secure about 20-25MW per year i.e 120-125MW over the next five years assuming a base case 8 percent growth in demand, and there are risks that this may be challenging and costly. Electricity demand could also grow faster if the economy picks up putting even more stress on investment financing and implementation capacity.

25. To maximize the chances of mobilizing the required financing and implement its investment program within the expected implementation schedules and managing the risks of deterioration in the quality of the services, it is recommended

that Togo, under the leadership of the Minister in charge of electricity, tackles the short-medium term and the long term challenges in parallel.

26. Short-term, the following areas of actions are proposed:

- a. **Investment Priorities.** The Government and CEET should rank the investments by order of implementation priorities, most likely placing additional investment in generation and in regional transmission strengthening as priority investments. Criteria for establishing such priority list should be: importance of the investment, financing availability and complexity of mobilization, probability of timely commissioning and risks of slippages, consistency with medium/long term plans of CEB, WAPP, financial impacts on CEET and the Budget, etc.
- b. **Immediately discuss with CEET and CEB, the 3-5 year coherent generation and transmission options** and agree on a base case and alternatives to ensure that adequate generation is available to Togo, and develop back-up plans (technical and financial). The Planning Directorate of MME (“Direction de la Planification”) with the help of consultants should be tasked to submit a feasible plan within the next 6 months (see Chapter III). The short-term plan should address the technical aspects (sources of generation, transmission investment), financing and financial impacts (as this may impact on CEET’s finances).
- c. In view of the fact that some investment and financing will be carried out by the private sector (notably for generation), Togo should immediately reassess and most likely upgrade its PPP framework to attract investors by removing key barriers, preparing sample contracts and implementing regulations. This enhanced PPP framework should also cover investments in renewable energies and off-grid rural electrification outside CEET’s mandate. PPIAF grant financing could be used for such work.
- d. As discussed earlier, Togo would also need to quickly resolve the issues related to the sub-sector medium/long term financial equilibrium, the tariff policy and CEET’s tariff levels. The proposed financial and tariff study (see Chapter V) should also assess affordability and develop a corresponding tariff schedule. It should also be linked with the financial analysis and modeling efforts to be carried out by CEB.
- e. Strengthen the existing institutions and provide adequate resources (financial and managerial resources for project preparation and project implementation) to guarantee that the projects included in the investment program are prepared within the agreed-to schedules.
- f. Set-up and resource a Task-Force to assess and manage the electricity supply generation issues discussed above.

27. For the medium-Long term, the following areas of actions are proposed:

- a. Together with CEB (and WAPP) develop a 20-year reference master plan for generation and distribution development, and decide which investments

(typically generation) could be financed by the private sector and which ones would be financed by the Donors.

- b. Together with CEB put in place the planning and financially modeling tools required to manage technically and financially the sub-sector.

F. Financial Assessment of Togo's Electricity Sub-Sector (Chapter VII)

28. CEET's financial situation is not strong, very much tied to decisions outside its borders particularly by Nigeria and Ghana on electricity export prices and international prices of fossil fuels. It is likely that it will deteriorate if decisive actions are not taken by the Government, in particular with respect to retail electricity tariff policy. Ensuring the financial equilibrium of Togo's electricity sub-sector, and the mobilization of the financing called to implement a large investment program (Chapter VI) is currently and will become even more critical in the coming months. This issue has potentially very large consequences as it will impact Togo's economic and social development, may require large transfers of scarce budget resources (clearly a last resort option), and importantly will limit Togo's ability to mobilize financing, notably from the private sector.

29. With respect to the financial equilibrium of Togo's electricity sub-sector and of CEET, the following actions are recommended:

- a. CEET and CEB should jointly develop a consolidated financial analysis using a state-of-the art financial model, and the modeling capacity to quickly and comprehensively assess in a coherent and transparent way the financial outlook of CEET and options, and delineate the actions required to ensure the financial equilibrium of the sub-sector. The interested financiers of the sub-sector should participate in this effort. The PPIAF facility could potentially finance this activity.
- b. A discussion paper and policy note should be prepared by MME with the support of CEET and CEB, and discussed in Cabinet, on electricity tariffing and the sub-sector financial outlook. This should be based on the above mentioned detailed financial analysis carried out by CEET and CEB, and on a least-cost electricity supply plan.
- c. CEET should continue optimizing the Contour Global PPA, by transferring unused part of the PPA to interested parties at least for a few years, such as to CEB for the benefit of Benin, or by discussing with the commercial lenders avenues to refinance the commercial debt. The related decisions would be informed by the conclusions of the recommended generation and transmission master plans.
- d. CEET should aggressively: (i) reduce its transmission and distribution losses (24 percent in 2011, 20 percent in 2010) towards meeting the objectives of the performance contract (the performance contract ending end 2013 proposed losses of 16.5 percent for 2013); as well as (ii) increase its collection performance. In particular the Government should ensure that the public sector pays its electricity bills. This could have quick cash flow benefits.

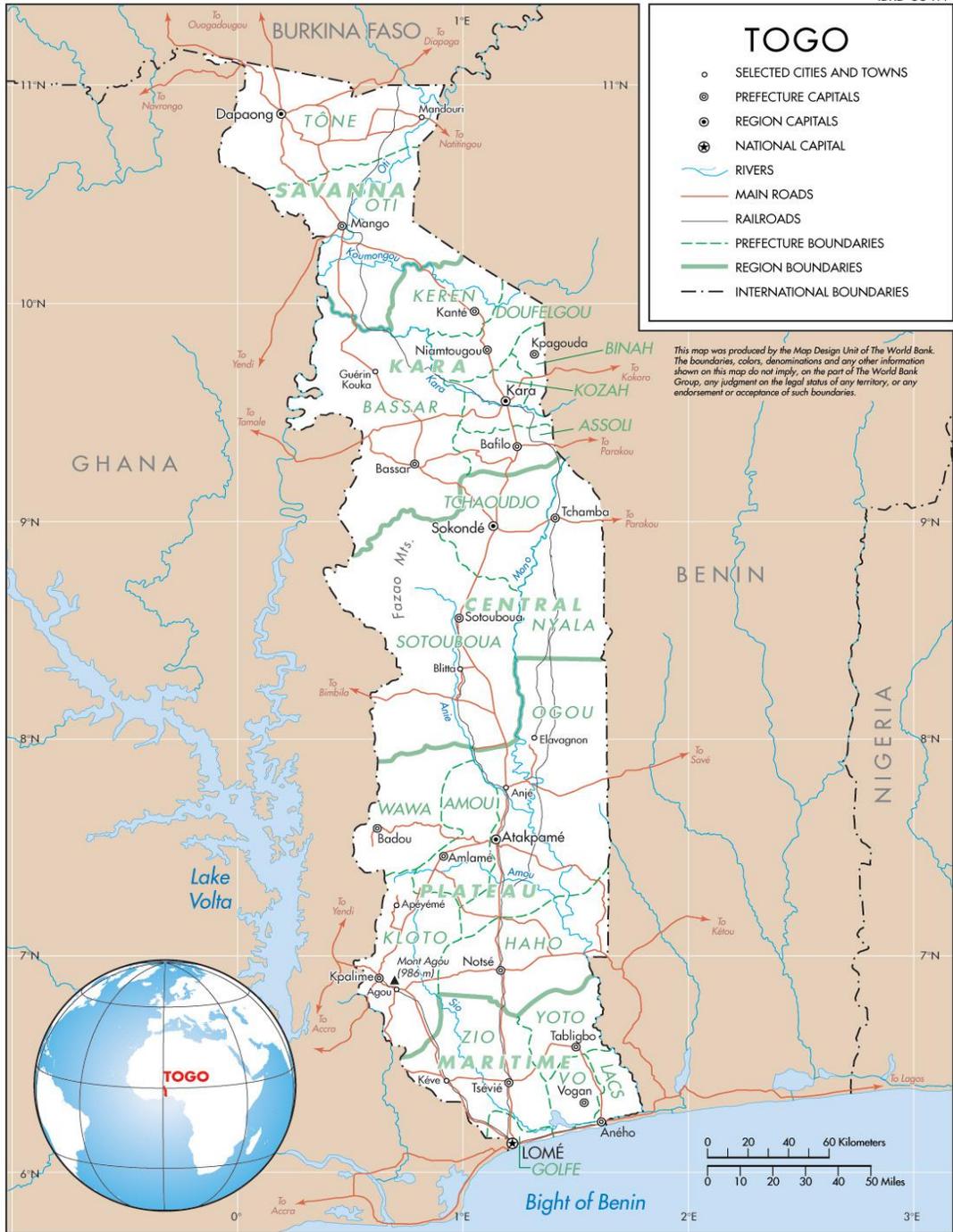
- e. MME and CEET should assess Togo's most promising hydro sites, including the rehabilitation or upgrading of existing sites, by carrying out feasibility level studies covering the technical, the environmental and social and the economic and financial impacts.
- f. The financing for the rural electrification program and investments mandated by the Government should be provided by the Government.

MAIN DOCUMENTS

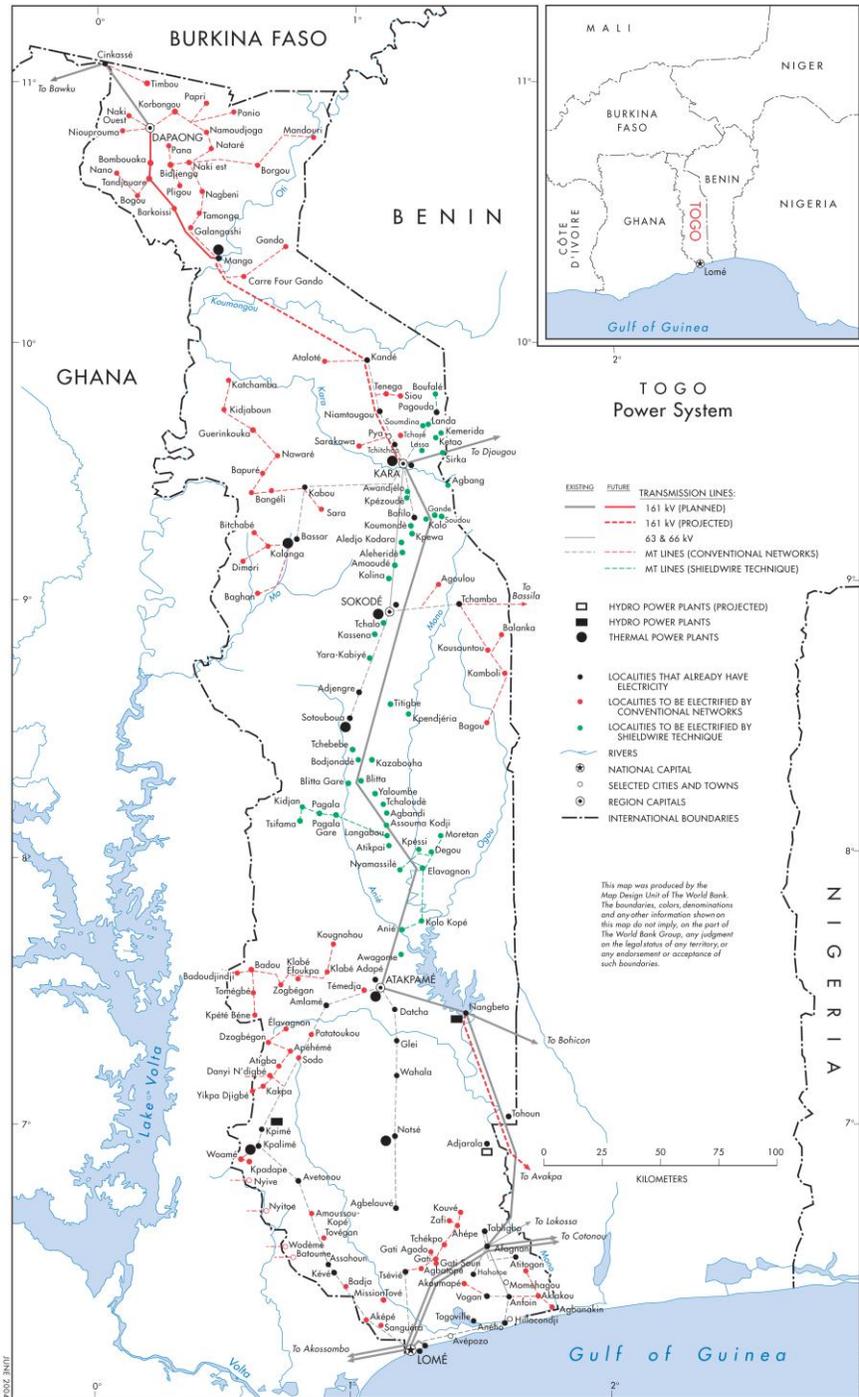
1. Annual Reports CEET (2010 and 2011)
2. Annual Reports CEB (2010 and 2011)
3. CEET Business Plan, May 2010
4. Study on the Options for Private Sector Participation and Organizational Audit of CEET (Nodalys) – May 2011
5. Strategic Plan for Togo's Electricity Sub-Sector (Sofreco) - January 2011
6. Energy Policy and Strategy report including Diagnostic Study – March 2012
7. Energy Information System Report

MAP OF TOGO

IBRD 33497



ELECTRICAL MAP OF TOGO



CEET's PERFORMANCE CONTRACT

COMPAGNIE ENERGIE ELECTRIQUE DU TOGO

PLAN D'AFFAIRES

Rubriques	Unité	Valeur indicative	2008	2009	2010	2011	2012	2013	Complément éventuel à la définition
1. INDICATEURS TECHNIQUES (IP1)									
1.1 Niveau de tension (% de la tension d'alimentation)									
* Basse Tension		230 / 400	30% de chute	30	20	15	10	10	
* Moyenne Tension	Kv	33; 20; 5,5		10	10	10	10	10	
1.2 Taux de pertes		15,0%	22,0%	20,0%	18,0%	17,5%	17,0%	16,5%	
1.3 Disponibilité du réseau									
1.3.1 Nombre d'interruption									
* Nombre d'interruptions programmés (hors délestage)			472	500	500	500	500	500	
* Nombre d'interruptions non programmés			302	250	200	150	150	150	
1.3.2 Respect des délais des interruptions									
* Nombre d'interruptions programmés respectant les délais de 4h	u	95%	70%	80%	85%	90%	95%	97%	
* Nombre d'interruptions non programmés respectant les délais de 4h	u	95%	65%	80%	85%	90%	95%	97%	
2. INDICATEURS COMMERCIAUX									
2.1 Nombre d'agences									
* Nombre d'agences munies d'abris	u		18	22	23	24	24	25	
2.2 Taux de recouvrement			87,78%	88,62%	89,47%	90,31%	91,16%	92,00%	
* Privés (privés, OICD et Zone Franche)	%		96,61%	96,89%	97,17%	97,44%	97,72%	98,00%	
* Administration Générale	%		31,72%	80,00%	84,00%	88,00%	93,00%	97,00%	
* Sociétés d'Etat	%		74,44%	75,55%	76,66%	77,78%	78,89%	80,00%	
* Organisme d'Etat	%		64,90%	65,92%	66,94%	67,96%	68,98%	70,00%	
* Collectivités Locales et budget autonome	%		50,00%	60,00%	70,00%	80,00%	90,00%	95,00%	
2.3 Nombre de compteurs à préparation	u		500	6 000	16 000	26 000	36 000	40 000	
2.4 Créances échues (mois d'impayés)									
* Privés (privés, OICD et Zone Franche)	mois		3	3	3	3	3	3	
* Administration Générale	mois		36,97	5	4	4	3	3	
* Sociétés d'Etat	mois		17,92	5	4	4	4	4	
* Organisme d'Etat	mois		36,55	5	4	3	3	3	
* Collectivités Locales et budget autonome	mois		56,07	6	5	5	4	4	
3. Qualité de service									
3.1 Délai moyen de production de devis									
* BT	jour	7	14	12	12	10	10	10	
* MT	jour		30	30	30	30	30	30	
3.2 Délai moyen de réalisation d'un branchement									
* BT	jour	8	33	15	15	12	12	12	
* MT	jour	120	120	120	120	120	120	120	
3.3 Délai moyen de réponse à toute demande	jour	5	15	15	10	10	10	10	
3.4 Délai moyen de dépannage	heure	5	12	10	8	6	6	6	
3.5 Délai moyen de rétablissement après coupure pour impayé	heure	12	24	24	24	24	24	24	
3.5 Respect des préavis de coupure (% du nbre de coupures)	%	95%	65%	80%	85%	90%	95%	95%	
4. Coût, productivité, rentabilité (IP4)									
4.1 Coût moyen du kwh distribué			101	108	123	121	118	117	
4.2 Capacité d'auto-financement			2 970	3 487	2 170	6 710	7 940	7 398	
4.3 Ratio de marge nette		> 0	-0,010	-0,020	-0,045	0,019	0,035	0,022	Resultat Net / CA
4.4 Ratio de marge d'exploitation			0,082	0,108	0,069	0,127	0,131	0,112	EBE / CA
4.5 Ratio de liquidité générale		> 1	1,245	1,197	1,093	1,417	1,571	2,166	(Actif circ. + Trésorerie active) / Dettes à moins d'un an/ Passif
4.6 Ratio d'équilibre financier		≥ 60%	121%	126%	130%	124%	120%	113%	FDR / Besoin en FDR

Electricity Consumption 1973-2011

(source Rapport SOFRECO p.64)

Tableau 1 : Historique de l'évolution de la demande

Années	GWh	Croissance	MW	Croissance	Facteur de charge
1973	54	—	11	—	0,56
1974	74	37%	13	18%	0,65
1975	82	11%	17	31%	0,55
1976	94	15%	18	6%	0,60
1977	117	24%	20	11%	0,67
1978	137	17%	25	25%	0,63
1979	183	34%	36	44%	0,58
1980	329	80%	29	-19%	1,30
1981	345	5%	30	3%	1,31
1982	362	5%	58	93%	0,71
1983	324	-10%	56	-3%	0,66
1984	212	-35%	68	21%	0,36
1985	295	39%	61	-10%	0,55
1986	291	-1%	65	7%	0,51
1987	307	5%	57	-12%	0,61
1988	320	4%	59	4%	0,62
1989	347	8%	63	7%	0,63
1990	359	3%	67	6%	0,61
1991	342	-5%	71	6%	0,55
1992	395	15%	70	-1%	0,64
1993	303	-23%	58	-17%	0,60
1994	337	11%	61	5%	0,63
1995	442	31%	58	-5%	0,87
1995	455	3%	69	19%	0,75
1997	478	5%	75	9%	0,73
1998	433	-9%	97	29%	0,51
1999	545	26%	90	-7%	0,69
2000	542	-1%	95	6%	0,65
2001	553	2%	97	2%	0,65
2002	558	1%	99	2%	0,64
2003	623	12%	98	-1%	0,73
2004	667	7%	102	4%	0,75
2005	684	3%	106	4%	0,74
2006	688	1%	110	4%	0,71

Pour chaque année, la croissance en % et le facteur de charge (°) ont été calculés par consultant SOFRECO.

2007	660	-4%	130	18%	0,58
2008	755	14%	153	18%	0,56

Current Electricity Tariff Schedule

COMPAGNIE ENERGIE ELECTRIQUE DU TOGO

PLAN D'AFFAIRES

ELEMENTS	ANCIEN TARIFS		NOUVEAUX TARIFS		Ecart	% d'Aug	
	Tranche	Coût kWh	Tranche	Coût kWh			
B01	USAGE DOMESTIQUE						
	PS<=2,2 kVA						
	Tranche sociale	C<= 40 kWh	60 F	C<= 40 kWh	66 F	6	10,0%
	Tranche 1	40 kWh< C < 300 kWh	75 F	0 kWh< C < 150 kWh	86 F	11	14,7%
	Tranche 2	C > 300 kWh	91 F	151 kWh< C < 300 kWh	110 F	19	20,9%
	Tranche 3			C > 300 kWh	120 F	29	31,9%
	PS>2,2 kVA						
	Tranche 1	0 kWh< C < 300 kWh	75 F	0 kWh< C < 150 kWh	86 F	11	14,7%
	Tranche 2	C > 300 kWh	91 F	151 kWh< C < 300 kWh	110 F	19	20,9%
	Tranche 3			C > 300 kWh	120 F	29	31,9%
B02	USAGE PROFESSIONNEL						
	Tranche 1	40 kWh< C < 300 kWh	76 F	0 kWh< C < 150 kWh	88 F	12	15,8%
	Tranche 2	C > 300 kWh	91 F	151 kWh< C < 300 kWh	110 F	19	20,9%
	Tranche 3			C > 300 kWh	120 F	29	31,9%
B03	ECLAIRAGE PUBLIC						
	Tranche unique		90 F		113 F	23	25,6%
B04	ZONE FRANCHE						
	Tranche unique		52 F		65 F	13	25,0%
B05	AGENTS CEET						
	Tranche unique		14 F		16 F	2	14,3%
B06	DOMESTIQUE HORS TAXE						
	PS<=2,2 kVA						
	Tranche sociale	C<= 40 kWh	60 F	C<= 40 kWh	66 F	6	10,0%
	Tranche 1	40 kWh< C < 300 kWh	75 F	0 kWh< C < 150 kWh	86 F	11	14,7%
	Tranche 2	C > 300 kWh	91 F	151 kWh< C < 300 kWh	110 F	19	20,9%
	Tranche 3			C > 300 kWh	120 F	29	31,9%
	PS>2,2 kVA						
	Tranche 1	0 kWh< C < 300 kWh	75 F	0 kWh< C < 150 kWh	86 F	11	14,7%
	Tranche 2	C > 300 kWh	91 F	151 kWh< C < 300 kWh	110 F	19	20,9%
	Tranche 3			C > 300 kWh	120 F	29	31,9%
B07	AGENTS CEB						
	PS<=2,2 kVA						
	Tranche sociale	C<= 40 kWh	60 F	C<= 40 kWh	66 F	6	10,0%
	Tranche 1	40 kWh< C < 300 kWh	75 F	0 kWh< C < 150 kWh	86 F	11	14,7%
	Tranche 2	C > 300 kWh	91 F	151 kWh< C < 300 kWh	110 F	19	20,9%
	Tranche 3			C > 300 kWh	120 F	29	31,9%
	PS>2,2 kVA						
	Tranche 1	0 kWh< C < 300 kWh	75 F	0 kWh< C < 150 kWh	86 F	11	14,7%
	Tranche 2	C > 300 kWh	91 F	151 kWh< C < 300 kWh	110 F	19	20,9%
	Tranche 3			C > 300 kWh	120 F	29	31,9%
B08	BONIFICATION PERSONNEL CEB						
	Tranche unique		91 F		114 F	23	25,3%
B09	CONCESSION CEET						
	Tranche unique		52 F		92 F	40	76,9%
B10	USAGE PROFESSIONNEL (Cabines Téléphoniques)						
	Tranche unique		76 F		95 F	19	25,0%
B11	USAGE PROFESSIONNEL (Panneaux Publicitaires)						
	Tranche unique		76 F		95 F	19	25,0%
B12	USAGE DOMESTIQUE (Cash Power)						
	Tranche unique		87 F		103 F	16	18,4%

70

ANNEX 7

CEET'S INVESTMENT PROGRAM

Nature	Désignation du projet	Montant travaux (MF.CFA)		Financement	Objectif	2010				2011				2012				2013				2014			
		HTVA	TTC			Tr1	Tr2	Tr3	Tr4	Tr1	Tr2	Tr3	Tr4	Tr1	Tr2	Tr3	Tr4	Tr1	Tr2	Tr3	Tr4	Tr1	Tr2	Tr3	Tr4
Projet Industriel	Renforcement et extension du réseau de distribution Phase 1	12 000	14 160	BOAD	Renforcement des capacité																				
	Réhabilitation du réseau MT 5,5 kV et électrification rurale Phase 1	6 250	7 375	BIDC	Expansion																				
	Extension du réseau de distribution de la ville de Lomé et 6 grande villes Phase 2	22 331	26 351	A Recherche	Expansion	EDF	RDF			APD & DAO															
	Électrification rurale Phase 2	12 440	14 679	A Recherche	Expansion	EDF	RDF			APD & DAO															
	Électrification transfrontalière à partir des réseaux ghanéen et béninois	15 064	17 747	A Recherche	Expansion	EDF	RDF			APD & DAO															
	Renforcement-Réhabilitation-Extension des départs et des postes sources	5 508	6 500	A Recherche	Renforcement des capacité	EDF	RDF			APD & DAO															
	Renforcement mécanique des réseaux de distribution moyenne et basse tension de la CEET	1 890	2 230	A Recherche	Renforcement des capacité	EDF	RDF			APD & DAO															
	Elaboration du Plan Directeur d'Électrification	300	354	A Recherche	Expansion																				
	Valorisation des sites de micro hydroélectricité du Togo	14 458	17 000	A Recherche	Renforcement des capacité					EDF															
	Réhabilitation du barrage de Kpimé	2 517	2 970	A Recherche	Renforcement des capacité					RDF				APD & DAO											
Centrale à charbon (IPP) *	300	354	A Recherche	Renforcement des capacité	EDF		RDF		APD																
Projet Commercial	Renforcement des capacités commerciale et de gestion clientèle	7 116	8 397	A Recherche	Renforcement des capacité	EDF	RDF	APD																	
	Réhabilitation et renforcement des postes autour des marchés, des centres commerciaux et des zones industrielles de Lomé ;	1 545	1 823	BM	Renforcement des capacité	APD & DAO																			
Projet financier	Modèle financier	75		A Recherche	Stratégique	APD																			
Projet ressources	Amélioration de la gestion commerciale	300			Stratégique																				
Projet de système d'information	Elaboration du cahier de charge d'un nouveau logiciel de gestion clientèle	50		A Recherche	Stratégique					AVP															
Total Général		102 144	120 000																						

Tr1: Trimestre 1
Tr2: Trimestre 2
Tr3: Trimestre 3
Tr4: Trimestre 4
* Etudes

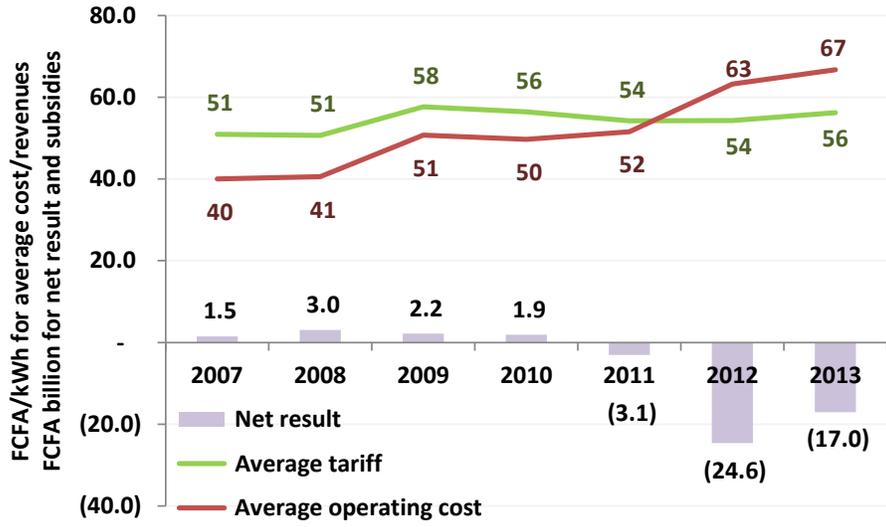
FDP: Fiche de Projet
EDF: Etudes de faisabilité
RDF: Recherche de financement
APD Avant projet détaillé

ANNEX 8 : Use and Cost of Contour Global IPP

Item	2010	2011	2012	Full use*
Produced (GWh)	47	67	190**	770
Producible (GWh)	161	770	770	770
% used	30%	9%	25%	100%
Take of pay cost (FCFA bn approx.)	3	15	15	15
Fuel cost (FCFA bn approx.)	4	5	15***	60***
Cost per kWh (FCFA/kWh)	147	303	157	97

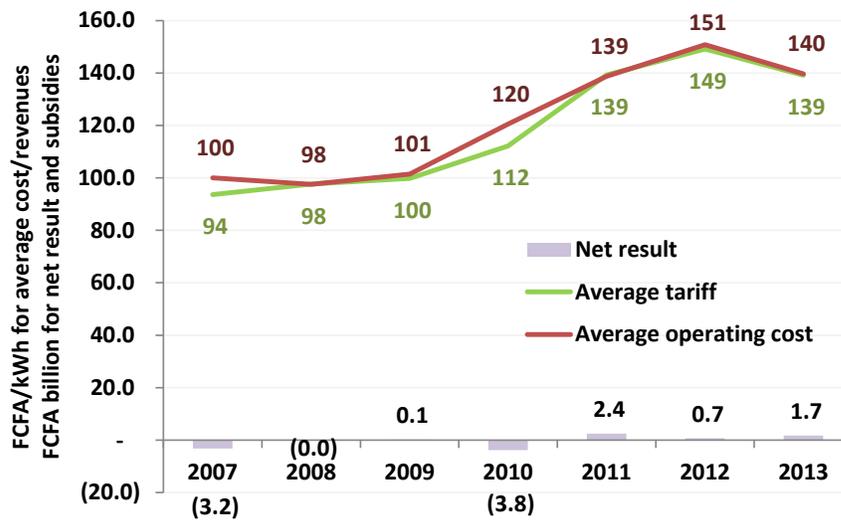
Source: CEET annual report. *Theoretical scenario **Estimate as of December 2012 ***Estimates based on 2011 fuel cost ratio

ANNEX 9: CEB's Average Tariff, Average Cost, and Net Result



Source: CEB financial statements and forecasts

ANNEX 10 : CEET's Average Tariff, Average Cost, and Net Result



Source: CEET financial statements and forecasts

ANNEX 11 : Action plan for the implementation of the main recommendations.

No	Key Actions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1	Policy and Electricity Sub-Sector											
1.1	Adoption of a new sector policy ¹											
1.2	Ensure the financial equilibrium of the sub-sector, CEET and CEB, and reviewing the tariffs.											
2	Institutions and Regulatory Framework											
2.1	Strengthening the Planning Unit of the Ministry responsible for electricity											
2.2	Institutional reforms for CEB, ARSE and RE											
2.3	Regulatory framework for PPP, Tariffs, RE, Renewable Energy											
2.4	New Performance Contract or Management Contract/Technical Assistance for CEET											
3	Electricity Sub-Sector Financial Equilibrium											
3.1	Transfer of Contour Global to CEB											
3.2	Preparation of a Consolidated Financial Model CEB-CEET											
3.3	Reduction of transmission and distribution losses											
3.4	Increase of bill collection performance											
4	Investment											
4.1	CEB(and WAPP) with CEET Develop a 20-year coherent reference master plan for generation, transmission and distribution.											
4.2	Implementation of Adjarala Hydro Power Project											
4.3	Implementation of investment in generation, transmission and distribution											
4.4	Increase of access to electricity services (urban and rural)											
	<i>1. The new energy policy will include:</i>											
	- The Electricity pricing policy ;											
	- A Delivery mechanisms and financing of Rural Electrification (RE);											
	- A Regulatory framework for the mobilization of private sector financing ;											
	- A Framework and incentives for the development of renewable energies.											