



អគ្គិសនីកម្ពុជា

ELECTRICITE DU CAMBODGE

ANNUAL REPORT 2013



Chairman's Statement



On behalf of the Board of Directors, I would like to express appreciation to EDC for bringing out its Annual Report for the year 2013. We are proud and appreciative of the achievements during 2013 and strongly believe that EDC is moving towards its

goal and vision to be the foremost power utility in Kingdom of Cambodia that builds deep customer relationship with a reputation for supplying reliable and affordable electricity to its valuable customers.

The Board of Directors takes great pride in acknowledging the huge success of the EDC management and staff. The cumulative achievements in the recent years have been unprecedented.

On this occasion, I wish to extend my personal heartfelt thanks to the management and staffs of EDC who have worked tirelessly to create many enduring achievements. It is through their dedication and hard work that EDC is well placed to realize its vision and goals.



Tun Lean

Chairman of the Board

From RGC Delegate in charge of Managing EDC



Once again, it gives me a real pride to present the annual report for the year 2013. The vision of Electricité du Cambodge (EDC) is to become the leading power utility in the Kingdom of Cambodia, to strive to meet the customers' load demands, and to improve the quality and reliability of supply.

During 2013, our energy sale was increased by 12.45% over the previous year to reach 3,483.66 GWh. Meanwhile, our system loss was reduced to 5.60%. Our revenue grew by 17% over the previous year to reach 2,674 billion riels. We have a combined workforce of 3,227 staff members serving 502,859 customers.

During 2013, Atay hydro power plant and 100 MW Coal Power Plant have been completed the construction and put in operation, which connected and supplied to the National Grid via 230 kV transmission line passing through Osom and Stung Hav Substations to Phnom Penh. The presence of these power plants have responded to the power shortage in this year.

230 kV transmission line from Kampot to Preah Sihanouk province under ADB and JICA loans with a length of 88 km and another 230 kV transmission line from Phnom Penh to Kampong Cham with a length of 110 km have been put in operation. These projects permit the National Grid to cover two more provinces: Preah Sihanouk and Kampong Cham.

In accordance with the strategy and the support of Royal Government of Cambodia (Royal Government's Fund) on rural electrification sector, EDC has attracted various grants and loans from various development partners such as KfW, ADB, Aus-aid, and China Exim Bank for implementing grid expansion projects for rural electrification in many areas of Kingdom of Cambodia in which 15 provinces are under study with a total length above 6,000 km.

In particular, the rural electrification projects under China Exim Bank loan are under the construction of medium voltage distribution systems as well as installation of transformers and expected to be completed in 2014, which cover in four provinces such as Kampong Cham, Prey Veng, Kampong Speu, and Preah Sihanouk province with the total length of 2,000 km. In addition, the rural electrification projects under KfW and Royal Government of Cambodia funds, which cover in 9 provinces such as Takeo, Kampot, Pursat, Battambang, Banteay Meanchey, Pailin, Oddar Meanchey, Preah Vihear, and Svay Rieng with the total length around 4,500 km have been started the construction and also expected to be completed in 2014.

Moreover, license holders (licensees) who provide electricity in their areas have signed 123 power purchase agreements with EDC as rural electricity enterprises (REEs) for bulk supply of electrical energy from the National Grid so that they can stop operating their small generators whose production cost is high.

This year, EDC has provided the grant of 4 million USD to Department of Rural Electrification Fund (REF) to continue its encouragement and development of rural electrification sector in the whole country via EDC's fund-providing policy.

The above efforts have resulted in many direct and indirect benefits for several hundred thousands of households and businesses across the country. This is clearly a concrete and real progress in helping Cambodia build a stronger foundation for sustainable economy and social development.

We would like to take this opportunity to acknowledge the contribution and commitment of all our employees who have played such an indispensable role in the success of this organization. We are highly indebted to the great guidance and wisdom given to us by **Samdech Akak Mohasena Padey Decho Hun Sen, Prime Minister of the Kingdom of Cambodia**, who always provides key supports at every major turning point.

We are also grateful to the Ministry of Industry, Mines and Energy for their ongoing direction and relentless efforts and to the Ministry of Economy and Finance for their support. Our special appreciation goes to the Electricity Authority of Cambodia for its valuable input and support and to the Board of Directors of EDC. We also highly value the support of all our client groups. In addition, we highly appreciate the continuing assistance extended to us by all development partners and a good professional and cooperative relationship by all Independent Power Producer (IPP) partners.

With these achievement and encouragement, we are ready to bring EDC and the power sector to higher level of development. We hold high hope for better days ahead.



Keo Rottanak

RGC Delegate in charge of Managing EDC

VISION

EDC's vision is to become the leading power utility in the Kingdom of Cambodia by striving to meet the customers' demands and to improve the quality and reliability of supply.

MISSION

Provide sufficient and consistently reliable power supply to consumers in its entire coverage areas at a competitive price. Improve the business operation to excellence and efficiency and participate in implementation of the government's policies on poverty reduction, environmental preservation, and socio-economic development.

FUNCTION AND RESPONSIBILITIES

EDC has the rights and responsibilities for generating, transmitting and distributing electricity throughout the Kingdom of Cambodia in conformity with its commercial obligations stipulated by laws, statute, license and other regulations of the Royal Government of Cambodia.

EDC operates as a commercial enterprise with independence to organize its business of generation, transmission and distribution of electricity and make capital investments, in appropriate response to market requirements and earn profit and raise productivity.

EDC is required to abide by the conditions of its license issued by the Electricity Authority of Cambodia (EAC) in providing electricity service. EDC is required to achieve its objectives by implementing its business plan approved by its Board of Directors and in accordance with the national energy policy and national development plan.

EDC shall limit its business activities to the types stipulated in its Statute and license granted by EAC.

EDC is permitted to be responsible for:

- 1- Generating, transmitting, and distributing electric power with the purpose of meeting the demand of all categories of buyers;
- 2- Exporting electric power to neighboring countries and import electricity from neighboring countries;
- 3- Constructing and operating national electric grid for energy transmission in order to ensure adequate and quality supply ;
- 4- Constructing and operating sub-transmission system for distribution of electricity and facilitate connections and operations between EDC and other distribution systems;
- 5- Selling electric power and other related services;
- 6- Purchasing, transferring, and exchanging electricity from other generators.

EDC has its source of capital from:

- 1- Grant contribution from the Royal Government;
- 2- Assets and land transferred by the Royal Government to EDC as per Article 7 of the Sub-Decree No. 23;
- 3- Capital generated from revenue as per the accounting rules of EDC;
- 4- Grant and other financing received by EDC with approval from the Officers;
- 5- Finance received by EDC from other financial sources with the approval of the Officers.

EVOLUTION OF ELECTRICITE DU CAMBODGE

Electricity has come to Cambodia in 1906. Before October 1958, power and light in Cambodia were provided by three private companies:

- Compagnie des Eaux et Electricité (CEE)
- Union d'Electricité d'Indochine (UNEDI)
- Compagnie Franco-Khmère d'Electricité (CFKE).

The CEE served the Greater Phnom Penh Area. The UNEDI took care of all other provinces, except Battambang. The CFKE had been serving Battambang-city all along.

By virtue of Kret N° 665-NS of October 10, 1958, the first two companies, CEE and UNEDI, merged under the name of ELECTRICITE DU CAMBODGE.

During 1970 to 1979, the power sector in the country passed through two dangerous events: civil war (1970-1975) and turbulent history during the Khmer Rouge Regime (1975-1979). During this time, all kinds of generation, transmission and distribution facilities were destroyed not only in Phnom Penh but also in other areas.

In 1979, EDC was re-integrated into an administrative structure under Ministry of Industry and then transferred to Phnom Penh Municipality in 1991, by the name Electricité de Phnom Penh (EDP) to manage the electric supply in Phnom Penh while the electric generations in the provinces were managed by the Department of Industry of the provincial authorities.

In 1992, EDP was re-named Electricité du Cambodge and was attached to the Ministry of Energy. After election in 1993, EDC was restructured under the Ministry of Industry, Mines and Energy (MIME) and was responsible for the development, management, and operation of the power system in Phnom Penh. Power utilities in a few provinces continue to remain under the control of Provincial Authorities, which receive budgetary support through MIME.

In March 1996 by the Royal Decree # 0396/10, Electricité du Cambodge became an autonomous wholly state-owned limited liability company to generate, transmit and distribute electric power throughout Cambodia. EDC is a judicial organization with administrative, financial, and managerial autonomy. EDC is responsible for its profits and losses and liable for its debts to the extent of the value of its assets.

MANAGEMENT STRUCTURE

On behalf of the Royal Government of Cambodia, the Ministry of Industry, Mines and Energy and the Ministry of Economy and Finance are co-owners of the EDC.

Board of Directors

As of 2013, EDC's Board comprises of the following seven members:



H.E. Tun Lean

Chairperson

Representative of the Ministry of Industry, Mines and Energy



H.E. Keo Rottanak

Member

RGC Delegate in charge of Managing EDC
Advisor to the Prime Minister



H.E. Chan Sothy

Member

Representative of the Ministry of Economy and Finance



H.E. Hem Kranh Tony

Member

Representative of the Council of the Ministers



Mr. Hang Touch

Member

Representative of EDC's Employees



Mr. Ku Khemlin
Member
Representative of the Ministry of Justice



Ms. Sok Sotheavy
Member
Representative of the Chamber of Commerce of Cambodia.

EDC's Management

EDC is headed by a RGC Delegate in charge of Managing EDC, with the ranking equivalence of a Secretary of State in the Government who reports to the Board of Directors, which in turn reports to the shareholding Ministers. EDC's Managing Director is assisted by four Deputy Managing Directors, and nine Executive Directors. As of 2013, the Management Level of EDC comprises of:



H.E. Keo Rottanak
RGC Delegate in charge of Managing EDC
Advisor to the Prime Minister



H.E. Chan Sodavath
Deputy Managing
Director
Planning and Technique



Mr. Chhung Ung
Deputy Managing
Director
Finance and Business



H.E Eng Kunthea
Deputy Managing
Director Administration
and Training



Mr. Keo Virac
Deputy Managing
Director Rural
Electrification Fund



Dr. Praing Chulasa
Executive Director
Dept of Corporate Planning and Projects



Miss. Sin Sovanny
Executive Director
Dept of Finance and Accounting



Mr. Ly Tikhea
Executive Director
Dept of Administration



Mr. Nou Sokhon
Executive Director
Dept of Transmission



Mr. Aun Hemrith
Executive Director
Dept of Generation



Mr. Chea Sinhel
Executive Director
Dept of Business and Distribution



Mr. Nget Sokhan
Executive Director
Dept of Procurement

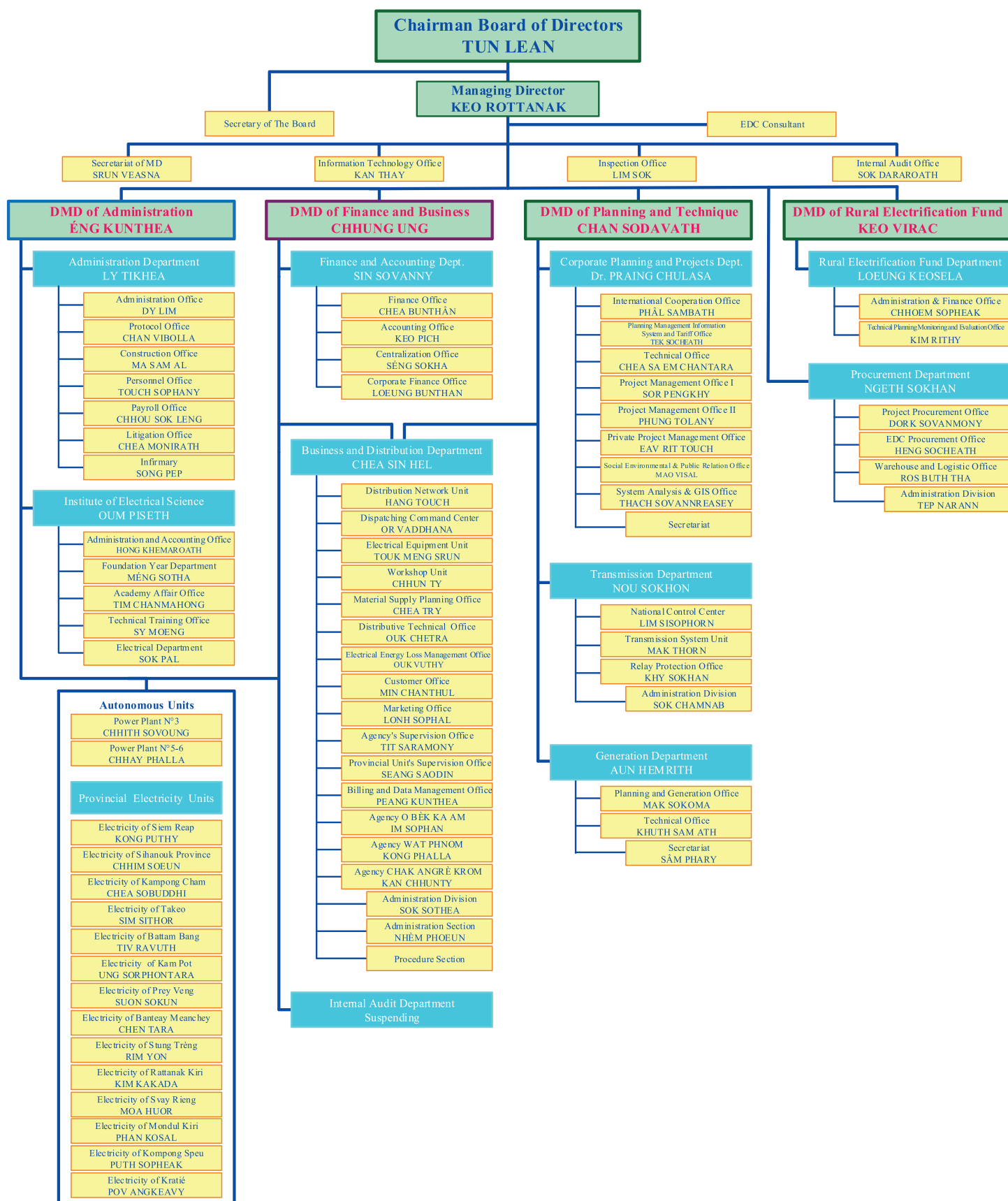


Mr. Oum Piseth
Executive Director
Institute of Electrical Science



Mr. Loeung Keosela
Executive Director
Dept of Rural Electrification Fund

Organization Chart of EDC



HUMAN RESOURCE DEVELOPMENT

In 2013, 1,001 trainees have been trained in 154 batches and 83 courses at EDC's Institute of Electrical Science. The breakups of the trainees for different trainings are: 343 trainees on distribution network, 84 trainees on Power Plant Protection, 161 trainees on metering, 124 trainees on safety, 102 trainees on generation, 47 trainees on high voltage transmission line, 95 trainees on software program and 45 trainees on technical English.

EDC is also collaborating with other educational institutes for training in order to improve the quality of work and provide new knowledge to its staff.

Table 1: EDC's Staff from 2008 to 2013

Type	2008	2009	2010	2011	2012	2013
Doctorate	1	1	1	2	3	4
Post-graduated	85	91	104	119	142	141
Engineer & other graduated	390	446	551	672	822	934
Vocational Technicians	351	358	390	429	493	570
Skilled Workers	247	245	246	207	188	180
High school, Unskill	1,167	1,219	1,278	1,331	1,287	1,398
Total	2,241	2,360	2,570	2,760	2,935	3,227

EDC's Management has the following vision for the betterment of its employees:

- To provide its employees with opportunities for professional growth and advancement on the basis of their performance, integrity and loyalty to EDC.
- To provide its employees with competitive remuneration and benefits to ensure good living conditions.
- To guarantee fairness, equal treatment and opportunity to employees, to maximize their contribution to the development of EDC.
- To provide suitable working conditions that facilitate an open and honest communication of information among employees to promote teamwork, productivity and cooperation for the organization's growth.

IMPORT FROM THAILAND AND VIETNAM AT HIGH VOLTAGE

EDC imports power from Thailand through 115 kV Aranya Prathet - Banteay Meanchey line which supplies to Banteay Meanchey, Battambang and Siem Reap grid substations. During 2013, EDC has imported 416,974,500 kWh from Thailand.

The 230 kV double circuit transmission line from Vietnam to Takeo was commissioned on 31st March 2009. The 230 kV double circuit line from Takeo to GS4 in Phnom Penh was charged on 8th May 2009. During 2013, EDC has imported 1,329,116,757 kWh from Vietnam via the above transmission line. This transmission line has been linked the lines and substations already constructed in Battambang, Pursat, Kampong Chhnang, and Phnom Penh. It will be linked to transmission lines which are under construction such as a 230 kV transmission line from Takeo province to Kampot province, a line from Kampot province to

Preah Sihanouk province, and a line from Phnom Penh to Kampong Cham province. The whole network will become the National Grid.

THE AREAS OF OPERATION, THEIR DEMAND & SUPPLY

The areas of operation of EDC and the position of demand and supply during the year 2013 are described below:

PHNOM PENH (PHN), AND SUB-URBAN AREA: Phnom Penh is the capital city of Cambodia. In this report the system supplied from GS1, GS2, GS3, GS4, GS5, and GS6 is termed as Phnom Penh System. The EDC Phnom Penh's coverage area includes Phnom Penh and the suburban areas around Phnom Penh in Kandal Province.

Phnom Penh System get power supply from National Grid, IPPs and its own power plants (EDC). The installed capacity of IPPs is 975.58 MW, import from Vietnam is about 170 MW and EDC's power plants is 44 MW which mostly use for standing by.

As of 2013, for the Phnom Penh System, the peak demand is 494.70 MW. The supply from EDC's generation and import in Phnom Penh System has increased from 2,479.73 GWh in 2012 to 2,757.42 GWh in 2013 and the system loss has decreased from 8.63% in 2012 to 8.23% in 2013.

SIEM REAP (SRP): Siem Reap is the area of tourist attraction and located in the northwest part of Cambodia. Electricity supply in Siem Reap is from its own power plant and import from Thailand.

The main operational features of power system in Siem Reap for 2013 are: available capacity 50.50 MW, peak demand 56.70 MW, energy received by import from Thailand at 115/22kV substation and own generation 296.10 GWh, total length of MV and LV lines 736.41 cct-km and number of customers 32,725.

PRAEH SIHANOUK (SHV): Preah Sihanouk province is the most stunning seaside tourist area, located in the southwestern part of Cambodia. Earlier the power system in Preah Sihanouk province was isolated and was supplied by Power Plants of IPP and EDC, together having an installed capacity of 19.60 MW. In 2013, under RETP project, the system has been connected and one part of its system has been supplying by Kampot system, which imports power from Vietnam via a 22 kV line. This has increased the availability of power resulting in supply to more areas and to other licensees in Preah Sihanouk province. The annual power available is 108.31 GWh, and peak demand 24.80 MW. The line length of MV and LV network is 304.37 cct-km and the number of customers in EDC distribution area are 13,146.

KAMPONG CHAM (KGC): Kampong Cham is the most fertile rubber plantation areas, located in the eastern part of Cambodia. The isolated power system in Kampong Cham is supplied by an IPP while some parts of the system has received imported power from Vietnam as of 2013. The annual availability of power is 46.44 GWh, installed capacity 9.18 MW, peak demand 16.80 MW. The line length of MV and LV network is 149.69 cct-km with 13,003 customers.

MEMOT (MMT) AND PONHEA KREK (PKK): The supply system for Memot and Ponhea Krek is located in Kampong Cham province and has MV system with rated voltage of 22 kV. The power supply to these areas has been imported from Vietnam since 2002 with the contracted capacity of 10 MW. As of 2013, the import

has been 54.86 GWh. The system has total MV and LV lines of 93.41 cct-km, and peak demand of 10.45 MW and 8,170 customers.

BATTAMBANG (BTB): Battambang has a strong agricultural economy with rice as its primary crop and is the leading rice production province, located in the north-western part of Cambodia. The 115 kV transmission line for importation of power from Thailand is connected with Siem Reap and Banteay Meanchey systems. Battambang city is supplied power by importing from Thailand and by its own power plant. The Battambang power system has installed capacity 21.60 MW, total MV and LV lines 691.53 cct-km. The energy available for 2013 is 133.77 GWh, peak demand 22.78 MW, and 40,735 customers.

BANTEAY MEANCHEY (BTC) AND MONGKUL BOREI: Banteay Meanchey is located in the northwestern part of Cambodia. Banteay Meanchey is supplied power by importing from Thailand and by its own power plant. The installed capacity of power system is 23.08 MW. As of 2013, the energy available is 51.19 GWh, peak demand 10.81 MW. The line length of MV and LV network is 256.13 cct-km and 18,022 customers has been connected.

STUNG TRENG (STR): Stung Treng is a remote and sparsely populated province located in the northeast of Cambodia. The power system of Stung Treng town has been connected to the Laos system at 22 kV since 2010. The system has installed capacity 5.64 MW (1.64 MW its own power plant and 4 MW imported from Laos), total MV and LV lines 202.43 cct-km. The peak demand in 2013 is 3.80 MW and the available energy is 10.58 GWh and 4,668 customers.

RATTANAKKIRI (RTK): Rattanakiri is situated on the border of Vietnam's central highlands and Laos. The power system of Rattanakiri, with installed capacity of 0.96 MW of its own hydro generation and 7.50 MW imported from Vietnam via a 35 kV sub-transmission line, has total MV and LV lines 138.70 cct-km. As of 2013, the peak demand is 4.17 MW and annual available energy is 22.73 GWh with 4,233 customers.

TAKEO (TKO) AND ANG TASOM: Takeo is located in the plain region of southern Cambodia. The 230 kV line from Vietnam and the Takeo substation was energized on 31st March 2009 to import power from Vietnam. As of 2013, Takeo has continued to have its own generation system with an installed capacity of 1.56 MW and 16 MW of import from Vietnam. It has had a peak demand of 8.77 MW, total MV and LV line of 367.96 cct-km, energy available of 39.39 GWh and 13,081 customers.

KAMPOT (KPT): Kampot is located in the southern part of the country. EDC's own power plant with installed capacity of 3.08 MW and power importation from Vietnam by a 22 kV line via Kampong Trach (KGT) are used for supply to Kampot city. As of 2013, generation and import has been 31.84 GWh, peak demand 5.92 MW and a distribution system with total MV and LV lines 338.89 cct-km and 10,559 customers.

KAMPONG TRACH (KGT): The power system is in Kampot province, and it has imported electricity from Vietnam since 2002. As of 2013 the contracted capacity has been 10 MW and the system has total MV and LV lines 75.65 cct-km, available energy 16.64 GWh, peak demand 3.38 MW and 3,499 customers.

PREY VENG (PRV): Prey Veng is located in the south-east of the country. The power system of Prey Veng City comprises of generation with an installed capacity of 4.94 MW by EDC's own generation and supply from Svay Rieng, which, in turn, imports power from Vietnam. The supply system has MV and LV line 473.96 cct-km, and peak demand of 2.73 MW. The energy available has been 15.38 GWh with 5,790 customers.

SVAY RIENG (SVR): Svay Rieng is located in the south-east of the country. The power supply is by importation from Vietnam and its own generation. Available capacity of power system is 8.30 MW. Importation and generation, as of 2013, has been 33.21 GWh with peak demand 6.67 MW. The line length of MV and LV network is 419.09 cct-km with 12,474 customers.

BAVET (BVT): The power system for Bavet is in Svay Rieng province, and the supply is by importation from Vietnam. As of 2013, there have been peak demand of 16.15 MW, imported energy from Vietnam of 87.47 GWh equivalent to 16 MW, and total MV and LV lines of 185.56 cct-km. The supply system has had 3,174 customers.

MONDULKIRI (MDKR): The power system of Mondulkiri was taken over by EDC in 2010. The installed capacity for generation is 370 kW of hydro generation, 300 kW of diesel generation and 1 MW imported from Vietnam. Under EDC control, as of 2013 generation has been 3.39 GWh with peak demand of 0.86 MW. The line length of MV and LV network is 120.39 cct-km and had 2,070 customers.

KEOSIEMA (KSM): The power system for Keosiemma is in Mondulkiri province. Supply is by import from Vietnam with a contracted capacity of 0.36 MW. Import has been 2.21 GWh with peak demand of 0.47 MW. The line length of MV and LV network is 77.91 cct-km with 1,337 customers.

KRATIE (KRT): The power system of Kratie was taken over by EDC in 2011. The isolated power system in Kratie is supplied by IPP and EDC with an installed capacity of 3.27 MW. Under EDC control, as of 2013 generation has been 10.49 GWh with peak demand of 2.49 MW. The line length of MV and LV network is 160.14 cct-km with 4,404 customers.

SNUOL (SNL): The power system is in Kratie province. This system is supplied by 4 MW of imported power from Vietnam with annual energy of 9.35 GWh and peak demand of 1.47 MW. The line length of MV and LV network is 32.69 cct-km with 1,167 customers.

KAMPONG SPEU (KPS): In mid-2012, Kampong Speu was upgraded to province branch office while it had been under Phnom Penh System previously. This new provincial branch is in charge of the system in Kampong Speu town and the areas along National Road No.4, getting power supply from Kampong Speu substation. Its annual sale energy is 52.48 GWh. The line length of MV and LV network is 805.58 cct-km with 10,828 customers.

Table 2: Installed Capacity and Output from Power Plants and Import, MW

Year		2008	2009	2010	2011	2012	2013
Location	Capacity						
PHN	Installed	247.28	453.48	429.48	429.48	633.90	1,219.58
	Output	217.49	317.49	317.89	332.89	571.29	968.19
EDC	Installed	45.60	45.60	44	44	44	44
	Output	42.60	42.60	41	41	41	41
CUPL IPP	Installed	37.10	37.10	37.10	37.10	37.10	37.10
	Output	31.99	31.99	31.99	31.99	31.99	31.99
Kirirom I IPP	Installed	12	12	12	12	12	12
	Output	11	11	11	11	11	11
Kirirom III IPP	Installed	-	-	-	-	18	18
	Output	-	-	-	-	18	18
Kamchay IPP	Installed	-	-	-	-	194.10	194.10
	Output	-	-	-	-	194.10	194.10
Atay IPP	Installed	-	-	-	-	-	120
	Output	-	-	-	-	-	120
LSRC IPP	Installed	-	-	-	-	-	338
	Output	-	-	-	-	-	169
CEL IPP	Installed	-	-	-	-	-	120
	Output	-	-	-	-	-	100
KEP IPP	Installed	49.20	49.20	49.20	49.20	49.20	49.20
	Output	45	45	45	45	43.20	43.20
CITY Power IPP	Installed	7.68	7.68	7.68	7.68	-	7.68
	Output	6.90	6.90	6.90	6.90	-	6.90
CEP IPP	Installed	49.20	49.20	49.20	49.20	49.20	49.20
	Output	45	45	45	45	45	45
COLBEN IPP	Installed	14	20.20	20.20	20.20	20.20	20.20
	Output	10	10	10	10	10	10
TH IPP	Installed	10	10	-	-	-	-
	Output	8	8	-	-	-	-
COLBEN PPSEZ IPP	Installed	12.40	12.40	-	-	-	-
	Output	10	10	-	-	-	-
Suvannaphum IPP	Installed	10.10	10.10	10.10	10.10	10.10	10.10
	Output	7	7	7	7	7	8
West PP (VN) IMP	Installed	-	200	200	200	200	200
	Output	-	100	120	135	170	170
Provinces		Installed	154.24	163.04	174.67	187.09	214.48
		Output	150.06	156.26	167.89	178.99	206.69
SRP	IPP	Installed	-	-	-	-	-
		Output	-	-	-	-	-
	EDC	Installed	10.50	10.50	10.50	10.50	10.50
		Output	10.50	10.50	10.50	10.50	10.50
	IMP	PPA	40	40	40	40	40
		Output	40	40	40	40	40
SHV	EDC	Installed	7.40	5.60	5.60	5.60	5.60
		Output	6.20	5	5	5	5
	IPP	Installed	8	14	14	14	14
		Output	7	10	10	10	10

Table 2: Installed Capacity and Output from Power Plants and Import, MW (Con't)

Year			2008	2009	2010	2011	2012	2013
Location		Capacity						
KGC	IPP	Installed	7.68	7.68	7.68	7.68	7.68	7.68
		Output	7	7	7	7	7	7
	IMP	PPA	-	-	-	1.50	1.50	1.50
		Output	-	-	-	1.50	1.50	1.50
PKK	IMP	Installed	5	5	5	5	5	5
		Output	5	5	5	5	5	5
MMT	IMP	Installed	5	5	5	5	5	5
		Output	5	5	5	5	5	5
TKO	EDC	Installed	1.56	1.56	1.56	1.56	1.56	1.56
		Output	1.50	1.50	1.50	1.50	1.50	1.50
	IMP	Installed	-	3	3	4	16	16
		Output	-	3	3	4	16	16
BTB	EDC	Installed	1.60	1.60	3.20	3.20	3.20	1.60
		Output	0.80	0.80	2.40	2.40	2.40	1.60
	IPP	Installed	-	-	-	-	-	-
		Output	-	-	-	-	-	-
	IMP	PPA	20	20	20	20	20	20
		Output	20	20	20	20	20	20
KPT	EDC	Installed	3.08	3.08	3.08	3.08	3.08	3.08
		Output	3	3	3	3	3	3
KGT	IMP	Installed	3	3	10	10	10	10
		Output	3	3	10	10	10	10
PRV	EDC	Installed	1.64	1.64	1.64	1.64	1.64	1.64
		Output	1.50	1.50	1.50	1.50	1.50	1.50
	IMP	Installed	-	0.80	0.80	0.80	0.80	3.30
		Output	-	0.80	0.80	0.80	0.80	3.30
BTC	EDC	Installed	3.08	3.08	3.08	3.08	3.08	3.08
		Output	3	3	3	3	3	3
	IMP	PPA	20	20	20	20	20	20
		Output	20	20	20	20	20	20
STR	EDC	Installed	1.64	1.64	1.64	1.64	1.64	1.64
		Output	1.50	1.50	1.50	1.50	1.50	1.50
	IMP	Installed	-	-	2	2	4	4
		Output	-	-	2	2	4	4
RTK	IPP	Installed	0.80	1.60	1.60	0.80	-	-
		Output	0.80	1.40	1.40	0.80	-	-
	EDC	Installed	0.96	0.96	0.96	0.96	0.96	0.96
		Output	0.96	0.96	0.96	0.96	0.96	0.96
	IMP	Installed	-	-	-	7	7	7.50
		Output	-	-	-	7	7	7.50

Table 2: Installed Capacity and Output from Power Plants and Import, MW (Con't)

Year			2008	2009	2010	2011	2012	2013
Location		Capacity						
SVR	EDC	Installed	0.80	0.80	0.80	0.80	0.80	0.80
		Output	0.80	0.80	0.80	0.80	0.80	0.80
	IMP	Installed	7.50	7.50	7.50	7.50	7	7.50
		Output	7.50	7.50	7.50	7.50	7	7.50
BVT	IMP	Installed	5	5	5	5	16	16
		Output	5	5	5	5	16	16
MDKR	EDC	Installed	-	-	0.67	0.67	0.67	0.67
		Output	-	-	0.67	0.67	0.67	0.67
	IMP	Installed	-	-	-	-	1	1
		Output	-	-	-	-	1	1
KSM	IMP	Installed	-	-	0.36	0.36	0.36	0.36
		Output	-	-	0.36	0.36	0.36	0.36
KRT	EDC	Installed	-	-	-	-	-	0.55
		Output	-	-	-	-	-	0.50
	IPP	Installed	-	-	-	2.72	2.72	2.72
		Output	-	-	-	1.20	1.20	1.20
SNL	IMP	Installed	-	-	-	1	4	4
		Output	-	-	-	1	4	4
Total		Installed	401.52	616.52	604.15	616.57	848.69	1,436.82
		Output	367.55	473.75	485.78	511.88	777.98	1,178.08
Percentage , %			91.54%	76.84%	80.41%	83.02%	91.67%	81.99%

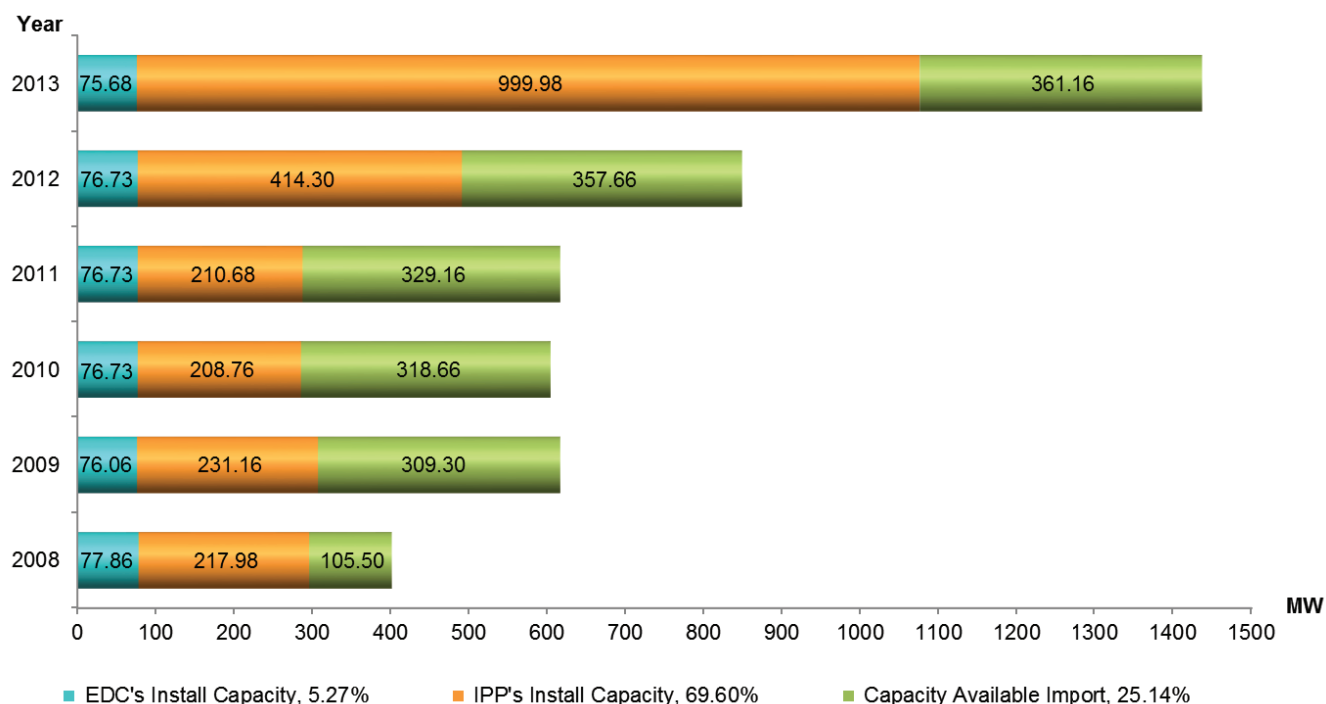


Figure 1: Installed Capacity in 2013

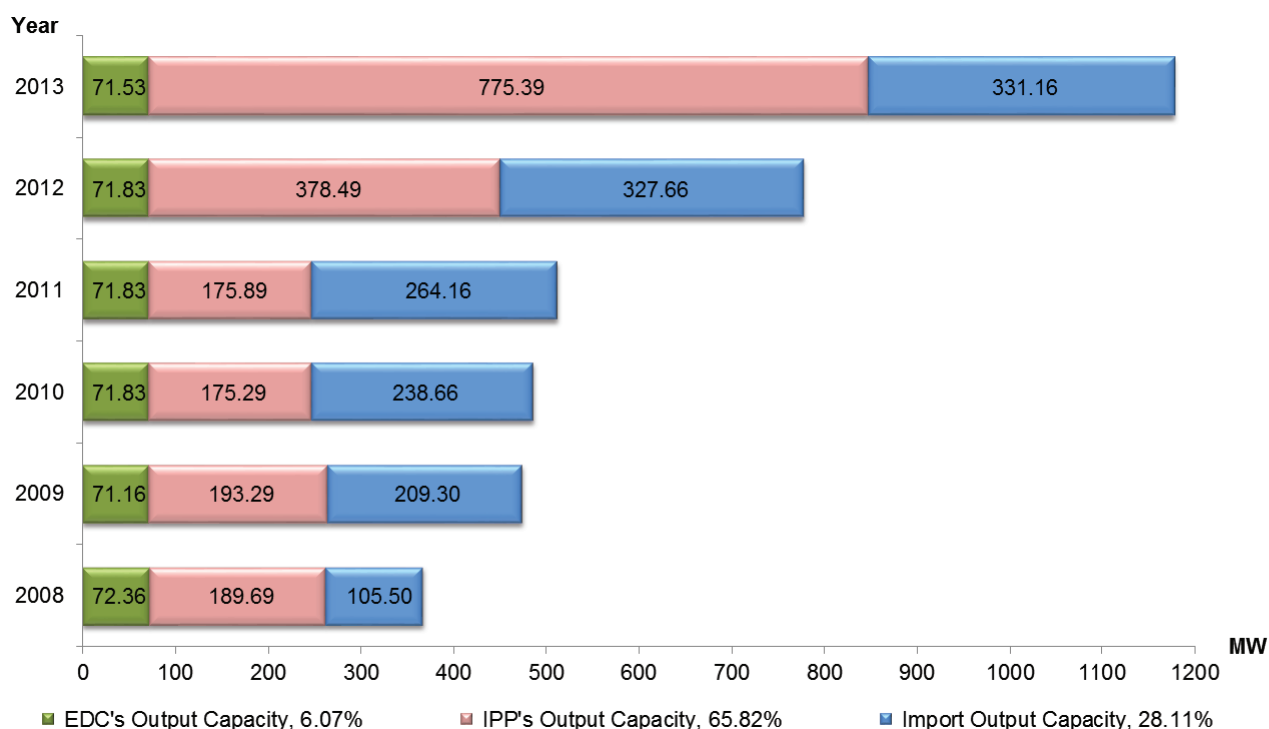


Figure 2: Output Capacity in 2013

Table 3: Energy Generation from Power Plants and Import, GWh

Year	2008	2009	2010	2011	2012	2013
Location						
National Grid	1,534.97	1,692.54	2,098.21	2,389.42	3,081.50	4,063.34
EDC's	143.85	82.86	33.08	48.52	58.28	84.82
CUPL	258.71	182.22	120.21	133.41	132.14	73.13
Jupiter	-	-	-	-	-	-
Kirirom I	43.32	44.41	24.21	38.25	29.21	44.57
Kam Chay	-	-	-	-	396.38	463.27
Kirirom III	-	-	-	-	86.40	90.39
ATAY	-	-	-	-	-	267.06
LRSCR	-	-	-	-	-	138.15
T.H	34.50	17.31	-	-	-	-
KEP	317.85	256.25	230.38	231.90	196.95	139.67
CITY POWER	41.82	34.11	18.23	25.26	15.79	13.14
CEP	325.88	269.48	247.29	227.70	209.46	143.73
COLBEN	46.45	53.24	35.80	34.17	31.07	19.15
S.L Garment	4.41	5.76	4.05	11.86	10.17	5.52
COLBEN PPSEZ	35.66	45.06	-	-	-	-
Suvarnaphum	23.36	28.03	32.07	46.50	37.42	29.75
CEL	-	-	-	-	-	139

Table 3: Energy Generation from Power Plants and Import, GWh (Con't)

Year	2008	2009	2010	2011	2012	2013
Location						
Thai	-	-	-	-	76.16	416.97
VN	-	357.21	954.55	1,120.96	1,198.96	1,329.12
PP Sugar	-	-	-	-	1.32	0.65
SRP	136.90	165.20	193.98	214.15	268.43	296.10
SHV	46.73	51.16	64.96	76.22	90.02	66.50
KGC	15.54	25.27	34.95	38.46	57.08	46.44
TKO	5.75	7.39	9.28	13.11	25.72	39.39
BTB	32.26	38.25	49.73	67.83	105.99	133.77
KPT	7.80	10.17	20.82	32.75	14.41	31.84
BTC	14.18	19.16	24.63	28.37	40.13	51.19
Off Grid	90.45	125.31	144.29	174.65	228.54	266.33
PKK	18.37	26.92	25.98	32.27	39.94	39.18
MMT	9.19	10.56	10.40	11.26	14.03	15.67
KGT	3.91	5.39	8.68	14.92	17.05	16.64
PRV	2.80	3.36	4.68	6.60	11.65	15.38
STR	3.53	4.39	5.80	6.65	9.01	10.58
RTK	5.78	6.41	8.19	9.47	17.16	22.73
SVR	9.45	12.91	18.15	23.80	26.99	33.21
BVT	37.42	55.37	60.86	59.35	74.02	87.47
MDKR	-	-	1.10	2.34	2.98	3.39
KSM	-	-	0.45	1.03	1.48	2.21
KRT	-	-	-	2.32	6.85	10.49
SNL	-	-	-	4.64	7.38	9.35
Total	1,625.42	1,817.85	2,242.49	2,564.07	3,310.05	4,329.67

Note: Energy Transfer Intercompany is 640.68 GWh

Table 4: Generation Sources from Power Plants and Import during 2013, GWh

LOCATION	EDC	IPP	IMPORT	TOTAL
National Grid	44.14	1,621.05	1,757.47	3,422.66
EDC p.p	35.86	1,567.19	1,746.09	3,349.14
SRP	4.40	-	-	4.40
SHV	3.55	21.80	-	25.35
KGC	-	32.06	-	32.06
TKO	0.03	-	-	0.03
BTB	0.01	-	-	0.01
KPT	0.13	-	11.38	11.51
BTC	0.16	-	-	0.16
Off Grid	5.67	2.88	257.78	266.33
PKK	-	-	39.18	39.18
MMT	-	-	15.67	15.67
KGT	-	-	16.64	16.64
PRV	0.23	-	15.16	15.39
STR	0.06	-	10.53	10.59
RTK	3.47	-	19.26	22.73
SVR	0.12	-	33.09	33.21
BVT	-	-	87.47	87.47
MDKR	1.79	-	1.61	3.40
KSM	-	-	2.21	2.21
KRT	-	2.88	7.61	10.49
SNL	-	-	9.35	9.35
TOTAL	49.81	1,623.93	2,015.25	3,688.99

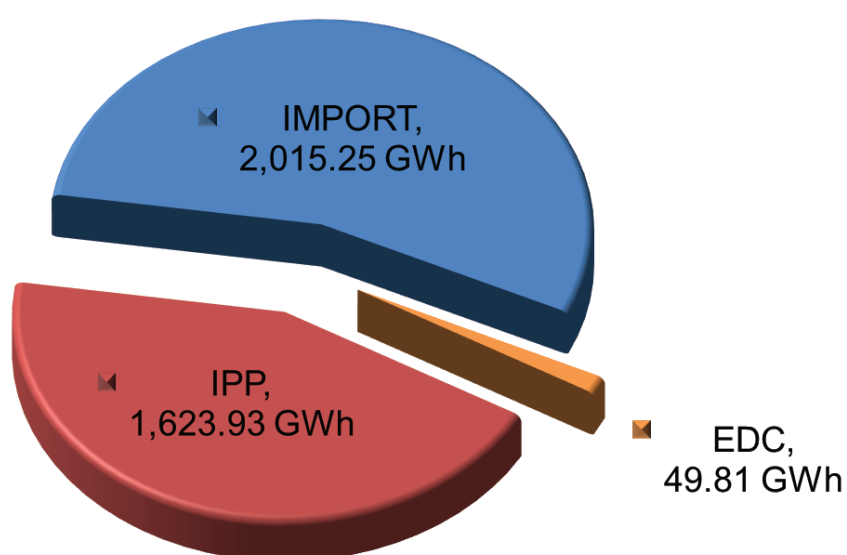


Figure 3: Power Generation by Sources in 2013

Table 5: Generation by types from Power Plants and Import during 2013, GWh

LOCATION	FUEL OIL	HYDRO	BIOMASS	COAL	IMPORT	TOTAL
National Grid	473.81	1,003.45	6.17	168.75	1,770.49	3,422.66
EDC p.p	424.68	1,003.45	6.17	168.75	1,746.09	3,349.14
SRP	4.40	-	-	-	-	4.40
SHV	25.35	-	-	-	-	25.35
KGC	19.04	-	-	-	13.02	32.06
TKO	0.03	-	-	-	-	0.03
BTB	0.01	-	-	-	-	0.01
KPT	0.13	-	-	-	11.38	11.51
BTC	0.16	-	-	-	-	0.16
Off Grid	3.23	5.13	0.18	-	257.78	266.33
PKK	-	-	-	-	39.18	39.18
MMT	-	-	-	-	15.67	15.67
KGT	-	-	-	-	16.64	16.64
PRV	0.23	-	-	-	15.16	15.39
STR	0.06	-	-	-	10.53	10.59
RTK	-	3.47	-	-	19.26	22.73
SVR	0.12	-	-	-	33.09	33.21
BVT	-	-	-	-	87.47	87.47
MDKR	0.13	1.66	-	-	1.61	3.40
KSM	-	-	-	-	2.21	2.21
KRT	2.69	-	0.18	-	7.61	10.48
SNL	-	-	-	-	9.35	9.35
TOTAL	477.04	1,008.58	6.35	168.75	2,028.27	3,688.99

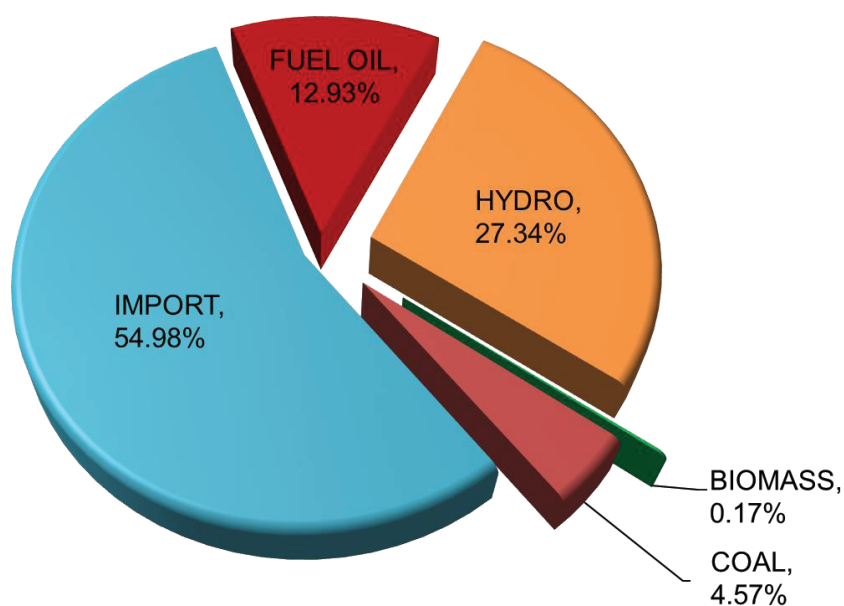


Figure 4: Generation by type in 2013

Table 6: Energy Generation in EDC's System in 2013, GWh

LOCATION	EDC	IPP	IMPORT	INTERCOMPANY	TOTAL
National Grid	44.14	1,621.05	1,757.47	640.68	4,063.34
EDC p.p	35.86	1,567.19	1,746.09	48.96	3,398.10
SRP	4.40	-	-	291.70	296.10
SHV	3.55	21.80	-	41.15	66.50
KGC	-	32.06	-	14.38	46.44
TKO	0.03	-	-	39.36	39.39
BTB	0.01	-	-	133.76	133.77
KPT	0.13	-	11.38	20.33	31.84
BTC	0.16	-	-	51.03	51.19
Off Grid	5.67	2.88	257.78	-	266.33
PKK	-	-	39.18	-	39.18
MMT	-	-	15.67	-	15.67
KGT	-	-	16.64	-	16.64
PRV	0.23	-	15.16	-	15.39
STR	0.06	-	10.53	-	10.59
RTK	3.47	-	19.26	-	22.73
SVR	0.12	-	33.09	-	33.21
BVT	-	-	87.47	-	87.47
MDKR	1.79	-	1.61	-	3.40
KSM	-	-	2.21	-	2.21
KRT	-	2.88	7.61	-	10.49
SNL	-	-	9.35	-	9.35
TOTAL	49.81	1,623.93	2,015.25	640.68	4,329.67

Table 7: Breakdown of Yearly Peak Demand, MW

Location	2008	2009	2010	2011	2012	2013
PHN	239	244.10	300.20	349.40	410	492.50
SRP	27.59	29.98	34.97	39.07	47.36	56.70
SHV	9.50	10.17	13.40	16.40	18.50	24.80
KGC	2.48	6.80	7.30	8.45	10.45	16.80
PKK	4.10	5.50	5	6.50	6.50	6.50
MMT	3.80	3	3	3.94	3.94	4.50
TKO	1.39	2.26	2.68	4.73	6.70	8.77
BTB	7.02	7.98	10.45	16.77	20.53	22.78
KPT	1.85	2.36	4.52	5.47	5.34	5.90
KGT	0.83	1.20	2.13	2.38	3.10	3.38
PRV	0.83	0.79	0.93	1.46	3.15	2.73
BTC	3.94	4.32	5.51	6.28	8.82	10.80
STR	0.98	1.08	1.96	2.37	3.22	3.80
RTK	1.68	1.78	1.94	2.24	3.69	4.20
SVR	2.24	2.80	3.70	5.40	5.30	6.67
BVT	4.81	9.50	11	11.20	15.10	15.60
MDKR	-	-	0.46	0.62	0.70	0.86
KSM	-	-	-	-	0.38	0.47
KRT	-	-	-	2.08	1.18	2.48
SNL	-	-	-	-	1.45	1.48
TOTAL	312.04	333.62	409.14	484.76	575.41	691.72

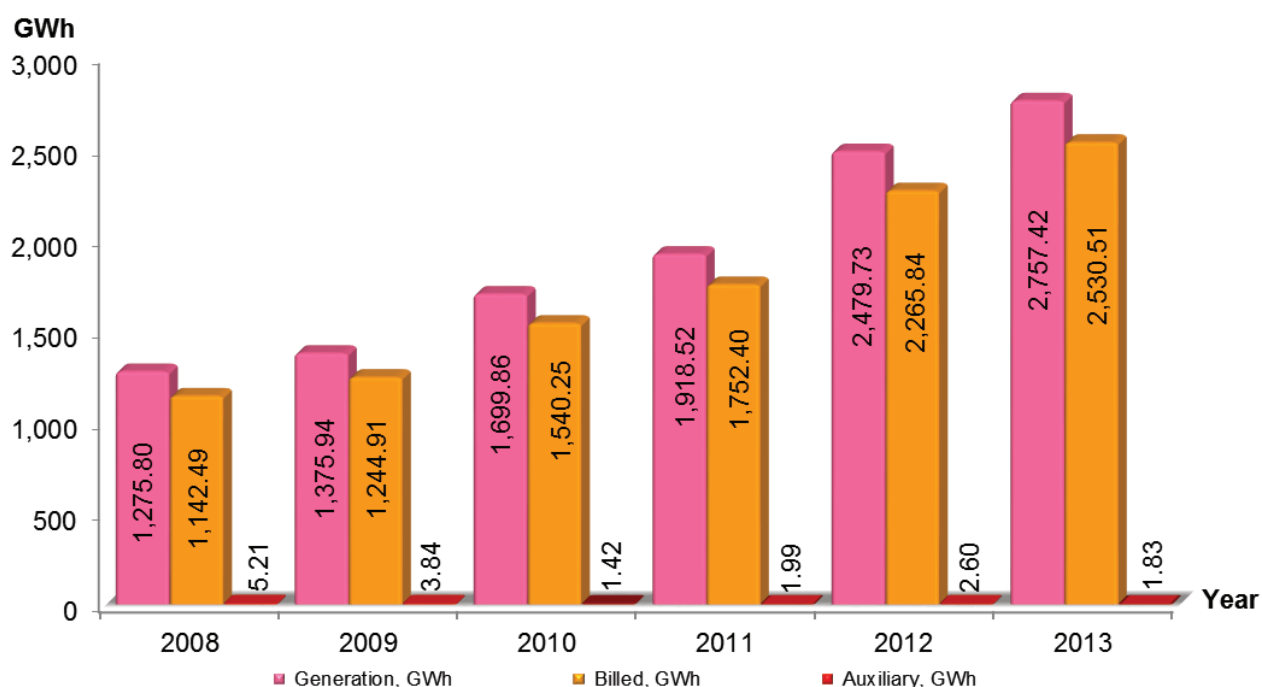


Figure 5: Breakdown of Generation, Billed and Auxiliary in Phnom Penh System from 2008 to 2013

Table 8: Energy Sales, GWh

Year	2008	2009	2010	2011	2012	2013
PHN	1,142.49	1,246.53	1,540.25	1,752.40	2,265.84	2,530.51
SRP	117.29	145.12	170.97	188.26	237.30	270.04
SHV	41.26	45.48	58.13	68.99	79.75	95.92
KGC	13.26	22.23	31.31	34.95	52.30	44.13
PKK	17.43	25.56	24.99	30.63	37.91	37.13
MMT	8.69	10	9.80	10.56	13.12	14.78
TKO	5.11	6.62	8.41	11.91	23.52	36.86
BTB	28.59	34.27	45.41	62.95	98.72	127.46
KPT	7.01	9.09	15.21	30.67	48.59	29.33
KGT	3.68	5.11	8.20	14.62	16.70	16.23
PRV	2.41	2.88	4.17	5.97	10.66	14.39
BTC	12.65	17.28	22.62	26.12	36.50	47.34
STR	3.06	4.10	4.84	5.79	8.08	9.59
RTK	4.99	5.77	7.53	8.67	15.97	21.49
SVR	8.53	11.81	16.51	23.33	23.58	26.37
BVT	34.95	52.22	61.96	55.01	70.65	86.81
MDKR	-	-	0.83	2.09	2.61	3.05
KSM	-	-	0.37	1.01	1.48	2.08
KRT	-	-	-	2.25	5.92	9.53
SNL	-	-	-	2.16	6.49	8.16
KPS	-	-	-	15.97	42.27	52.48
TOTAL	1,451.42	1,644.07	2,031.50	2,354.29	3,097.97	3,483.66

Note: Energy Transfer Intercompany is 640.68 GWh

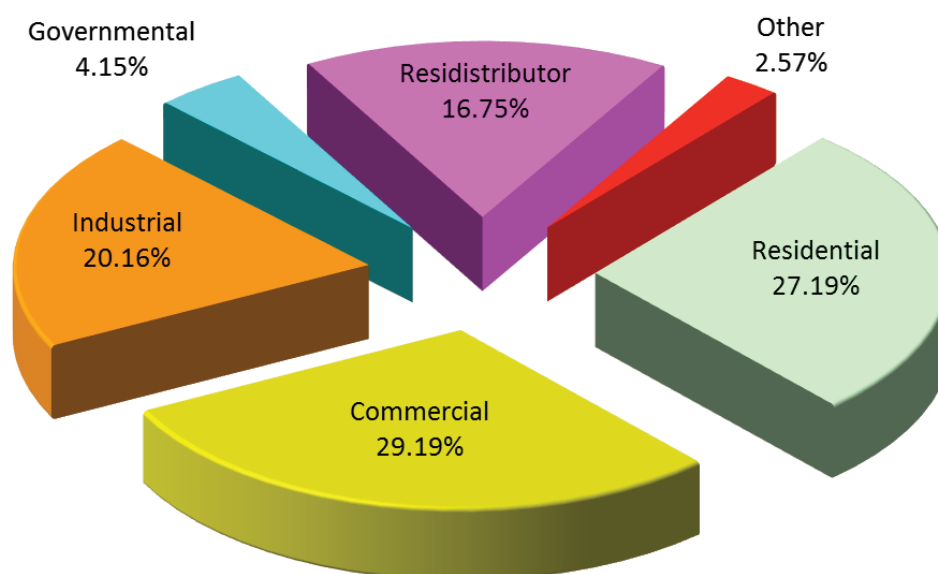


Figure 6: Energy Sale by Sector for EDC's System in 2013

Table 9: Energy Sales during 2013, GWh

Year	Energy Sales	Accrued sale	Intercompany	Total
PHN	3,111.14	52.93	(633.56)	2,530.51
SRP	269.55	0.49	-	270.04
SHV	97.03	(1.12)	-	95.92
KGC	43.97	0.16	-	44.13
PKK	37.12	0.00	-	37.13
MMT	14.65	0.13	-	14.78
TKO	36.71	0.15	-	36.86
BTB	127.84	(0.39)	-	127.46
KPT	36.48	(0.03)	(7.12)	29.33
KGT	16.23	0.00	-	16.23
PRV	14.32	0.07	-	14.39
BTC	47.40	(0.06)	-	47.34
STR	9.58	0.01	-	9.59
RTK	21.32	0.18	-	21.49
SVR	26.41	(0.04)	-	26.37
BVT	86.78	0.03	-	86.81
MDKR	3.05	(0.00)	-	3.05
KSM	2.07	0.01	-	2.08
KRT	9.45	0.08	-	9.53
SNL	8.51	(0.34)	-	8.16
KPS	52.82	(0.33)	-	52.48
TOTAL	4,072.42	51.92	(640.68)	3,483.66

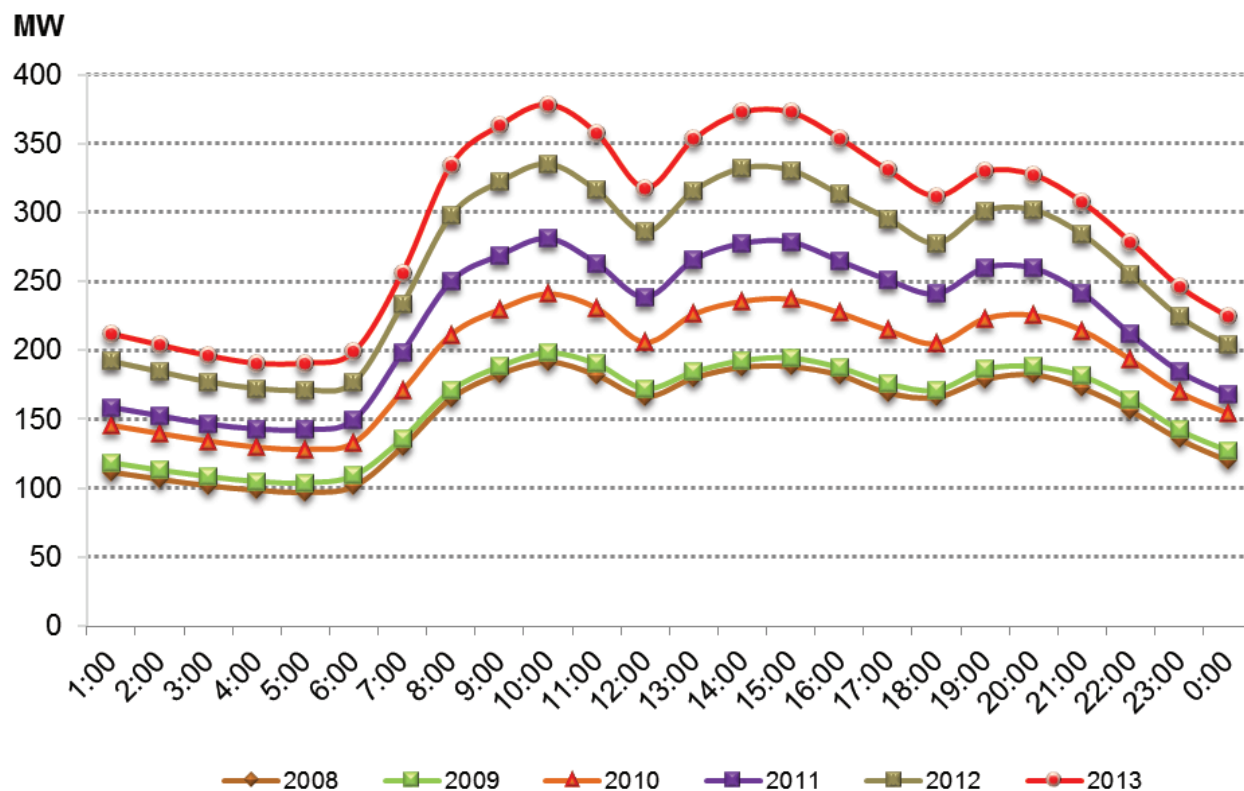


Figure 7: Average Daily Load Curve from 2008 to 2013 in Phnom Penh

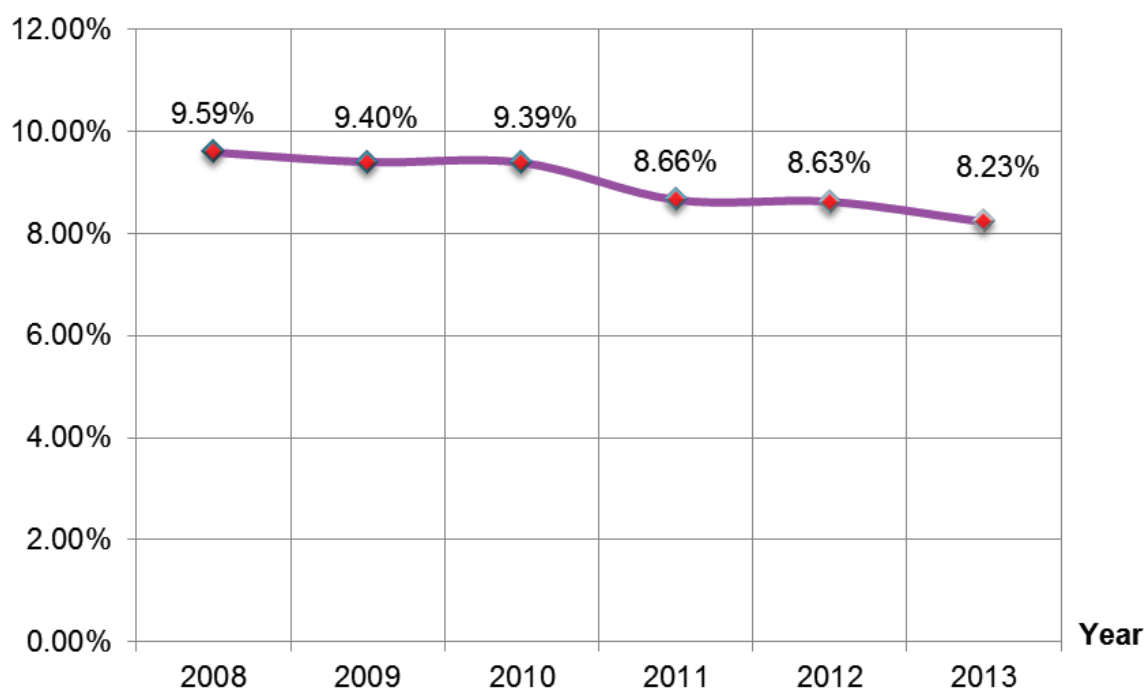


Figure 8: System Losses in Phnom Penh System from 2008 to 2013

Table 10: Customer from 2008 to 2013

Year	2008	2009	2010	2011	2012	2013
PHN	211,680	224,593	240,992	256,642	276,307	299,774
SRP	16,601	18,229	19,951	26,156	28,791	32,725
SHV	9,254	9,767	10,636	11,472	12,246	13,146
KGC	7,101	8,225	10,478	11,739	12,239	13,003
PKK	2,095	2,210	2,386	2,519	2,694	2,849
MMT	3,644	3,731	4,018	4,285	4,992	5,321
TKO	5,292	5,638	5,987	7,682	11,201	13,081
BTB	20,093	23,902	31,575	32,756	38,498	40,735
KPT	6,079	6,314	7,171	7,796	9,332	10,559
KGT	2,159	2,287	2,515	2,676	2,831	3,499
PRV	3,460	3,554	4,447	4,725	5,538	5,790
BTC	13,464	13,941	14,816	16,085	17,213	18,022
STR	2,378	2,502	2,636	3,090	3,563	4,668
RTK	2,667	2,770	2,910	3,197	3,538	4,233
SVR	7,325	8,565	10,795	11,390	10,298	12,474
BVT	2,213	2,301	2,495	2,562	4,518	3,174
MDKR	-	-	1,328	1,444	1,719	2,070
KSM	-	-	861	973	1,202	1,337
KRT	-	-	-	3,552	3,632	4,404
SNL	-	-	-	1,051	1,094	1,167
KPS	-	-	-	6,274	9,547	10,828
TOTAL	315,505	338,529	375,997	418,066	460,993	502,859

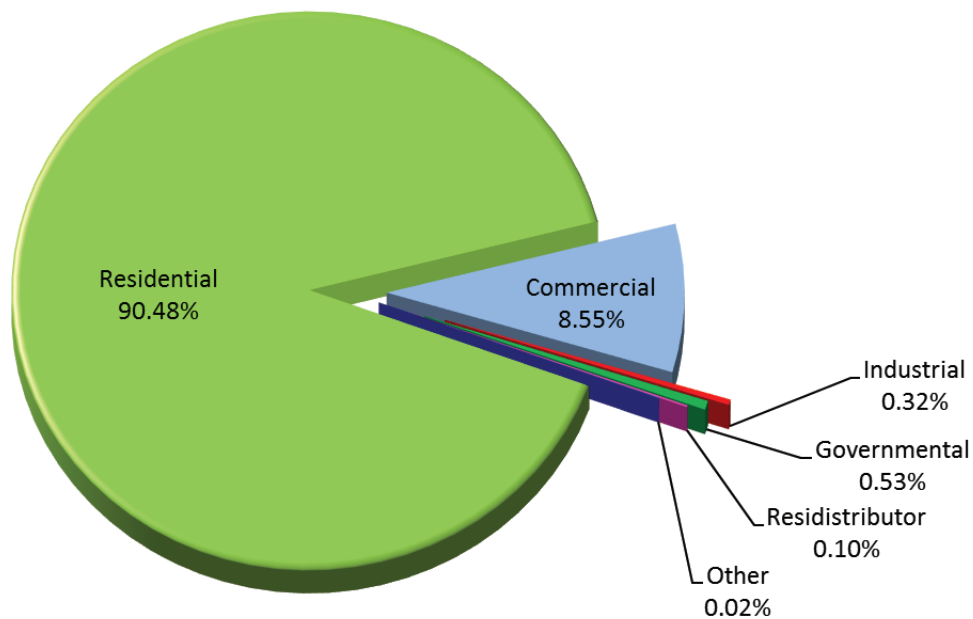


Figure 9: Customer by Type in EDC's System in 2013

TRANSMISSION AND DISTRIBUTION NETWORKS

The first 115 kV transmission line of 22.71 km length linking the three grid substations (GS1, GS2 and GS3) in Phnom Penh System was energized in 1999. In 2002, another 115kV transmission line of 111 km length was erected to link Kirirom I Hydro Power Plant to GS1. The main purpose of the 115 kV ring bus line around Phnom Penh is to supply power to Phnom Penh area and to increase the reliability of Phnom Penh system by interlinking three grid substations.

The three provinces in the north-western Cambodia – Battambang, Banteay Meanchey, and Siem Reap – are supplied by 115 kV transmission line of 185 km length by importing power from Thailand, and this line was commissioned at the end of 2007.

In 2009, the first 230 kV transmission line in Cambodian history with 97 km in length to supply to Takeo Grid Substation and the West Phnom Penh Substation (GS4) was put in service getting power supply from Vietnam. The 115 kV transmission line ring system connecting West Phnom Penh Substation (GS4) to the 3 existing substations in Phnom Penh was also put in operation.

In 2011, the 230 kV transmission line with 73 km in length was extended from Takeo Grid Substation to Kampot Grid Substation and linked to Kamchay Hydro power plant with another 230 kV transmission line with a length of 11 km.

The construction of 230 kV transmission line from Phnom Penh to Battambang has started operating since April 2012 with a length of 300 km and another 230 kV transmission line from Osom substation (Koh Kong) to Pursat province substation with a length of 130 km under BOT construction scheme. The construction of 115 kV from 230/115/22 kV substation of CPG (Cambodia Power Grid) to connect with 115 kV substation of CPTL (Cambodia Power Transmission Line) which was put in service on September 01, 2012 permits the National Grid to be able to extend from a part of the southern grid (Phnom Penh, Kandal, Kampong Speu, Takeo, Kampot and Kep) to the northwestern grid (Battambang, Banteay Meanchey and Siem Reap) through Kampong Chhnang and Pursat provinces.

230 kV transmission line from Kampot to Preah Sihanouk province under ADB and JICA loans with a length of 88 km and another 230 kV transmission line from Phnom Penh to Kampong Cham with a length of 110 km have been put in operation. These projects permit the National Grid to cover two more provinces: Preah Sihanouk and Kampong Cham.

Table 11: Transmission Facilities

I	115 kV Transmission line	Circuit	Cross Section (mm ²)	Line Length (km)	Operation Year	Capital Source
1	GS1 - GS3	1	2x250	11.50	1999	World Bank
2	GS3 - GS2	1	2x250	11.85	1999	World Bank
3	GS1 - GS KPS	1	150	40.93	2002	BOT
4	GS KPS - Kirirom I	1	150	65.04	2002	BOT
5	Thai Border - GS IE	2	400	4	2007	BOT
6	GS IE - GS BMC	2	400	43	2007	BOT
7	GS BMC - GS SR	1	400	85	2007	BOT
8	GS BMC - GS BTB	1	400	53	2007	BOT
9	GS4 - GS1	1	2x250	29.80	2009	World Bank

Table 11: Transmission Facilities (Con't)

I	115 kV Transmission line	Circuit	Cross Section (mm ²)	Line Length (km)	Operation Year	Capital Source
10	GS4 - KEP	1	2x250	22.80	2009	World Bank
11	KEP - GS2	1	2x250	6.60	2009	World Bank
12	Kirirom I - Kirirom III	1	150	32	2012	BOT
13	Atay Hydro Power Plant - GS Osom	2	630	17.80	2013	BOT
Total length				423.32 km		

II	230 kV Transmission line	Circuit	Section (mm ²)	Line Length (km)	Operation Year	Capital Source
1	Vietnam Border - GS TKO	2	450	50	2009	ADB - NDF
2	GS TKO - GS4 (WPP)	2	630	47	2009	ADB - NDF
3	GS TKO - GS KPT	2	450	73	2011	KfW
4	GS KPT - Kamchay Hydro Power Plant	2	630	11	2011	BOT
5	GS4 - GS6(NPP) - GS Kampong Chhnang - GS Pursat - GS Battambang	2	630	293.38	2012	BOT
6	GS Pursat - GS Osom	2	630	132	2012	BOT
7	GS KPT - GS Steung Hav(SHV)	2	630	81.62	2013	ADB - JICA
8	GS6(NPP) - GS KGC	2	2x400	97.18	2013	BOT
9	GS Osom - Lower Reussey Chrum Hydro Power Plant	2	2x400	42	2013	BOT
Total length				827.18 km		

Table 12: Grid Substation Facilities

No.	Grid Substation Name	Rate Voltage (kV)	Number of Transformer	Capacity (MVA)	Operation Year
1	GS1	115/22/15	1	50	1999
		115/22	1	50	
2	GS2	115/22/15	1	50	1999
		115/22	1	50	
3	GS3	115/22	2	50	1999
4	GS KPS	115/22	1	6.3	2002
5	GS BTB	115/22	1	25	2007
6	GS BTC	115/22	1	25	2007
7	GS SRP	115/22	1	50	2007
8	GS4 (WPP)	230/115	2	200	2009
		115/22	2	50	
9	GS TKO	230/22	1	16	2009
10	GS KPT	230/22	1	50	2011
11	GS Kampong Chhnang	230/22	1	25	2012
12	GS Pursat	230/22	1	25	2012
13	GS BTB	230/115/22	1	90	2012

Table 12: Grid Substation Facilities

No.	Grid Substation Name	Rate Voltage (kV)	Number of Transformer	Capacity (MVA)	Operation Year
14	GS5 (SWS)	115/22	2	50	2013
15	GS Stung Hav	230/22	1	50	2013
16	Additional Capacity of 115 kV GS1, GS2, GS3	115/22	1	50	2013
		115/22	2	75	
17	GS6 (NPP)	115/22	2	50	2013
		230/115	2	200	
18	GS Osom	230/115/22	1	150	2013
19	GS KGC	115/22	1	50	2013

The voltage of medium voltage systems of EDC generally is 22 kV and low voltage 0.4/0.22 kV. During 2009 and 2010, Distribution network in Phnom Penh, Kampong Speu, Prey Veng, Banlung (Rattanakiri), Stung Treng, and Preah Sihanouk province have been strengthened with 22 kV medium voltage lines. The detailed data of lines of different voltages are shown in the following table.

The rural electrification projects under China Exim Bank loan have started the construction of medium voltage distribution systems and transformers in early 2012 and expected to be completed in 2014, which covers in four provinces such as: Kampong Cham, Prey Veng, Kampong Speu and Preah Sihanouk province with the total length of 2,000 km. In addition, the rural electrification projects under KfW and Royal Government of Cambodia funds, which covers in 9 provinces such as: Takeo, Kampot, Pursat, Battambang, Banteay Meanchey, Pailin, Oddar Meanchey, Preah Vihear and Svay Rieng are under bidding preparation with the total length around 4,500 km.

Table 13: Distribution Facilities of EDC System

Location	Item	2008	2009	2010	2011	2012	2013
PHN & Kandal	Line Length, cct-km	1,518.54	1,602.85	1,877.16	2,058.16	2,572.53	3,585.76
	Medium Voltage	698.71	741.81	932.64	1,076.08	1,287.26	2,203.55
	Low Voltage	819.83	861.04	944.52	982.08	1,285.27	1,382.21
	# MV Substation	1,196	1,412	1,591	1,875	2,170	2,385
KPS	Line Length, cct-km	75.03	116.22	115.84	128.15	151.67	805.58
	Medium Voltage	20.13	61.32	60.94	74.07	95.88	673.20
	Low Voltage	54.90	54.90	54.90	54.08	55.79	132.38
	# MV Substation	22	23	23	62	71	87
SRP	Line Length, cct-km	277.03	287.19	417.02	626.10	657.56	736.41
	Medium Voltage	154.91	160.48	192.06	350.32	367.73	414.44
	Low Voltage	122.12	126.71	224.96	275.78	289.83	321.97
	# MV Substation	91	95	126	158	184	196
SHV	Line Length, cct-km	139.55	173.78	283.83	297.70	297.70	304.37
	Medium Voltage	65.09	99.32	203.36	203.96	203.96	207.96
	Low Voltage	74.46	74.46	80.47	93.74	93.74	96.41
	# MV Substation	64	69	144	155	178	187
KGC	Line Length, cct-km	50.08	52.60	141.62	144.01	145.45	149.69
	Medium Voltage	22.56	22.84	50.80	50.97	51.28	51.60
	Low Voltage	27.52	29.76	90.82	93.04	94.17	98.09
	# MV Substation	29	31	52	59	59	64
PKK	Line Length, cct-km	33.35	33.35	39.55	43.85	45.02	45.17
	Medium Voltage	22.55	22.55	23.59	26.90	27.12	27.12
	Low Voltage	10.80	10.80	15.96	16.95	17.90	18.05
	# MV Substation	29	29	27	31	31	21
MMT	Line Length, cct-km	42.41	45.17	46.37	46.46	46.46	48.24
	Medium Voltage	21.64	23.10	23.10	23.17	23.17	23.17
	Low Voltage	20.77	22.07	23.27	23.29	23.29	25.07
	# MV Substation	27	30	31	37	37	24
TKO	Line Length, cct-km	105.39	104.17	105.93	280.14	280.14	367.96
	Medium Voltage	31.30	31.29	31.77	158.31	158.31	158.31
	Low Voltage	74.10	72.88	74.16	121.83	121.83	209.65
	# MV Substation	29	31	31	101	104	113
BTB	Line Length, cct-km	172.11	216.21	248.73	642.89	642.91	691.53
	Medium Voltage	56.18	44.05	74.89	401.03	401.03	444.19
	Low Voltage	115.93	172.16	173.84	241.86	241.88	247.34
	# MV Substation	55	96	79	227	228	240
KPT	Line Length, cct-km	92.29	94.78	147.67	289.86	338.89	338.89
	Medium Voltage	32.77	32.77	68.42	205.61	226.64	226.64
	Low Voltage	59.51	62.01	79.25	84.25	112.25	112.25
	# MV Substation	28	30	38	71	90	105
KGT	Line Length, cct-km	39.73	39.93	45.18	45.42	60.02	75.65
	Medium Voltage	21.68	21.68	25.05	25.05	39.45	46.78
	Low Voltage	18.05	18.25	20.13	20.37	20.57	28.87
	# MV Substation	13	12	24	31	36	44
PRV	Line Length, cct-km	45.72	83.19	100.27	100.27	112.44	473.96
	Medium Voltage	10.32	47.79	53.12	53.12	55.62	417.14
	Low Voltage	35.40	35.40	47.15	47.15	56.82	56.82
	# MV Substation	14	14	17	17	20	21

Table 13: Distribution Facilities of EDC System (Con't)

Location	Item	2008	2009	2010	2011	2012	2013
BTC	Line Length, cct-km	146.68	146.69	136.40	159.71	171.32	173.91
	Medium Voltage	33.66	33.66	29.50	41.42	46.26	48.85
	Low Voltage	113.03	113.03	106.90	118.29	125.06	125.06
	# MV Substation	32	32	33	39	50	55
MKB	Line Length, cct-km	46.10	46.95	49.60	63.89	82.22	82.22
	Medium Voltage	13.40	14.25	15.37	29.66	45.48	45.48
	Low Voltage	32.70	32.70	34.23	34.23	36.74	36.74
	# MV Substation	13	13	17	26	35	35
STR	Line Length, cct-km	47.23	111.43	74.06	132.93	132.93	202.43
	Medium Voltage	12.98	77.18	39.81	92.18	92.18	132.08
	Low Voltage	34.25	34.25	34.25	40.75	40.75	70.35
	# MV Substation	12	12	14	25	23	37
RTK	Line Length, cct-km	53.03	56.02	54.12	124.42	130.30	138.70
	Medium Voltage	21.69	24.28	20.29	90.18	90.25	91.74
	Low Voltage	31.34	31.74	33.83	34.24	40.05	46.96
	# MV Substation	19	13	14	30	50	72
SVR	Line Length, cct-km	209.27	212.37	218.36	406.17	417.51	419.09
	Medium Voltage	120.29	121.99	127.98	314	325.34	325.34
	Low Voltage	88.98	90.38	90.38	92.17	92.17	93.75
	# MV Substation	40	40	53	56	71	54
BVT	Line Length, cct-km	30.35	30.35	31.74	39.68	173.99	185.56
	Medium Voltage	11.21	11.21	11.21	11.95	141.19	141.24
	Low Voltage	19.14	19.14	20.53	27.73	32.80	44.32
	# MV Substation	31	32	35	50	50	21
MDKR	Line Length, cct-km	-	-	61.67	64.48	109.39	120.39
	Medium Voltage	-	-	29.67	32.24	68.93	72.93
	Low Voltage	-	-	32	32.24	40.46	47.46
	# MV Substation	-	-	40	42	49	54
KSM	Line Length, cct-km	-	-	44	44	63.65	77.91
	Medium Voltage	-	-	20	20	32.50	45.80
	Low Voltage	-	-	24	24	31.15	32.11
	# MV Substation	-	-	16	16	22	22
KRT	Line Length, cct-km	-	-	-	46.79	135.54	160.14
	Medium Voltage	-	-	-	28.75	116.84	122.59
	Low Voltage	-	-	-	18.04	18.70	37.55
	# MV Substation	-	-	-	13	44	49
SNL	Line Length, cct-km	-	-	-	-	32.58	32.69
	Medium Voltage	-	-	-	-	19.07	19.07
	Low Voltage	-	-	-	-	13.51	13.61
	# MV Substation	-	-	-	-	25	28
Total	Line Length, cct-km	3,123.89	3,453.25	4,239.12	5,785.08	6,800.22	9,216.25
	Medium Voltage	1,371.07	1,591.57	2,033.57	3,308.97	3,915.49	5,939.22
	Low Voltage	1,752.83	1,861.68	2,205.55	2,476.11	2,884.73	3,277.02
	# MV Substation	1,744	2,014	2,405	3,121	3,627	3,914

Rural Electrification Fund of EDC

Establishment of Rural Electrification Fund (REF)

The Royal Government of Cambodia (RGC) issued the Royal Decree No. NS/RKT/1204/048 dated 4 December 2004 on the establishment of Rural Electrification Fund of the Kingdom of Cambodia to accelerate the development of rural electrification. Then, on 22nd August 2012, RGC issued a new Royal Decree No. NS/RKT/0812/734, amending some articles of the old Royal Decree on formation of Rural Electrification Fund, to integrate Rural Electrification with Electricité du Cambodge (EDC) so that Rural Electrification Fund can continue to perform its works independently on Cambodian funding and still also receive grant and donations from external funding to assist in development of rural electrification in Cambodia.

Work progress of REF after integration with EDC until the end of 2013

1. **Power to the Poor (P2P):** The purpose of this program is to facilitate the poor households in rural areas to have access to electricity for their houses from grid supply by providing interest free loan to meet (i)- costs for the connection fees of the electricity supplier, (ii)- costs for deposit to be deposited with the electricity supplier, (iii)- costs for purchase of materials and labor for the installation of wires from the connection point to its house, and (iv)- costs for purchase of materials and labor for the installation of in-house wiring. The loan will be paid through the electricity suppliers who are responsible for paying back to REF by collecting the borrowers' monthly installments within a specific period. The amount of this loan shall not exceed 480,000 Riels per household. So far, 6,331 rural families equivalent to 30,507 people have directly benefited from this program.
2. **Solar Home Systems (SHS) Program:** The purpose of this program is to facilitate the remote rural household, which may not have access to the electricity network for a long period, to access electricity through SHS. REF will subsidize 100 USD per SHS to rural households, as assistance to reduce the cost of the SHS and purchasers shall pay monthly installment without interest, in period of four years. After the purchaser has paid the remaining cost in full, the SHS will become the property of the purchaser. So far, 16,000 rural families equivalent to 73,600 people have directly benefited from this program.
3. **Program for Providing Assistance to Develop Electricity Infrastructure in Rural Areas:** The purpose of this program is to facilitate the private electricity supplier in rural areas having legal license to access fund for investing on expansion of electricity supply infrastructure to fully cover its authorized distribution area in order to allow all rural households to have access to electricity for use. So far, 24 licensees have directly benefited from this program.

CAMBODIA POWER DEVELOPMENT PLAN

Power Sector Development Policy

The Royal Government of Cambodia formulated an energy sector development policy in October 1994, which aims at:

- Providing an adequate supply of electricity throughout Cambodia at reasonable and affordable price,
- Ensuring reliable and secured electricity supply which facilitates investment in Cambodia and development of the national economy,
- Encouraging exploration and environmentally and socially acceptable development of energy resources needed for supply to all sectors of the Cambodian economy,
- Encouraging efficient use of energy and minimizing environmental effects resulting from energy supply and use.

Power Demand Forecast

According to Power Development Plan of the Kingdom of Cambodia, prepared in 2007, electricity demand is expected to face a significant increase for the next 14 years. Electricity generation in Cambodia is projected to grow from 278.92 MW and 1,106.48 GWh in year 2006 to 1,699 MW and 9,205 GWh in year 2020. To meet the future demand, the Royal Government has developed Power Development Plan up to 2024.

The majority of this growth will occur in the southern grid which includes Phnom Penh. The Table below depicts the expected power demand and energy output for Cambodia.

Table 14: Cambodia's Power Demand Forecasting

Base Case	2013	2015	2020
Peak in Main Grid (MW)	691.72*	814	1,452
Peak in Whole Country (MW)	856	1,078	1,699
Energy in Main Grid (GWh)	3,688.99*	4,499	8,019
Energy in Whole Country (GWh)	4,453	5,717	9,205

* Peak Demand and Energy in Main Grid are actual data in 2013

Generation Master Plan

Generation Master Plan has been developed on the following criteria:

- Peak thermal generation in Phnom Penh.
- Small and medium size diesel units for base and peak load generation in the provincial towns and cities.
- Expansion of hydro development based initially on smaller size hydro power plants which are easily accessible such as Kirirom, and subsequently mid and large size hydro projects like Kamchay, Stueng Atay, Lower Stueng Russei Chrum, Battambang, Lower Srepork II, or Lower Sesan.

Generation Development Plan 2014 - 2020

No.	Project Name	Type	Capacity (MW)	Operation Year
1	Lower Stueng Russey Chhrum Hydro Power Plant	Hydro	338	2014
2	Stueng Tatay Hydro Power Plant	Hydro	246	2015
3	700 MW Coal Power Plant (CIIDG) in Sihanouk Ville - Phase 1	Coal	240	2015
4	Lower Sesan II Hydro Power Plant	Hydro	400	2017
5	135 MW Coal Power Plant (CIIDG) in Sihanouk Ville	Coal	120	2017
6	Stueng Chay Areng Hydro Power Plant	Hydro	108	2020
Total			1,452 MW	

Transmission Master Plan

Transmission Development Plan 2014 - 2020

No.	115 kV Transmission Line	Circuit	Length (km)	Year	Development Partner
1	GS Steung Hav - GS Sihanouk Ville	2	11	2014	JICA
2	GS Chhuk - GS Banteay Meas	1	12	2014	EDC
3	Phnom Penh loop line	2	42	2015	China Exim Bank
4	GS Siem Reap - New GS East Siem Reap	1	25	2016	BOT
5	GS2 - GS Hunsen Park and Grid Substation	2	4.50	2016	BT
6	GS7(SPP) - GS Prey Veng - GS Bavet	2	155	2017	China Exim Bank
7	Laos Border to GS Preah Vihear	1	60	2017	CHMC Phase III
8	GS Kampong Thom - GS Preah Vihear & GS Kampong Seung - GS Svay Antor	1	140	2017	CHMC Phase IV
9	Kirirom III Hydro Power - GS Chamkar Loung	1	27	2018	LDP
10	GS Kampong Cham - GS Praek Prosab (Kratie)	1	100	2018	AFD
11	Underground Line from GS1 - GS EDC HQ - GS Samdech Hunsen Park - GS Olympic Stadium - GS NCC - GS3	1	14	2018	JICA Phase I
12	Midpoint of GS5 and GS1 - GS Toul Kork	2	0.10	2020	JICA Phase II
13	GS5 - GS Chroy Changvar	2	18	2020	LDP
14	GS Banteay Meanchey - GS Odor Meanchey	1	105	2020	LDP
Total Length			713.60 km		

Transmission Development Plan 2014 - 2020 (Con't)

No.	230 kV Transmission Line	Circuit	Length (km)	Year	Development Partner
1	Lower Uppper Reussey Chrum Hydro power - Tatay Hydro Power	2	38	2014	BOT
2	Phnom Penh loop line (WPP - SPP)	2	48	2014	China Exim Bank
3	GS4 - GS Steung Hav (Along the Road No.4)	2	172	2016	BOT
4	GS Battambang - GS East Siem Reap	2	100	2017	China Exim Bank
5	GS East Siem Reap - GS Kampong Thom	2	130	2017	China Exim Bank
6	GS Kampong Thom - GS Kampong Cham	2	100	2017	China Exim Bank
7	GS Kampong Cham - GS Kratie	2	110	2017	BOT
8	GS Kratie - GS Steung Treng	2	130	2017	Indian Exim Bank
9	GS Steung Treng - Lower Sesan II	2	18	2017	BOT
10	Phnom Penh loop line 2nd Phase (NPP - Chroy Changvar - EPP - NPP)	2	65	2018	China Exim Bank
11	GS Chamkar Loung - GS Botumsakor	2	47	2018	AFD
/12	GS Botumsakor - Tatay Hydro Power	2	70	2018	LDP
13	GS Koh Kong - GS Koh Kong City	2	21	2018	AFD
14	GS Kratie - GS Mondulkiri	2	140	2019	China Exim Bank
15	GS Ratanakiri - GS Steung Treng	2	105	2019	China Exim Bank
16	GS Steung Treng - Laos Border	2	48	2019	LDP
17	Midpoint of GS6(NPP) and GS4 - GS5	2	10.20	2020	JICA Phase II
18	Underground Line from GS5 - GS NCC	2	9.28	2020	JICA Phase II
Total Length			1,361.48 km		

* LDP : Looking for Development Partner

Power Interconnection with Thailand

The Power Cooperation Agreement with Thailand was signed on 3rd February 2000. This agreement provided a framework for the power trade and technical assistant between these two countries and opened the power access to the third countries. The Power Purchase Agreement (PPA) was signed in 2002 and amended in 2007. It encouraged the joint utilization of the existing natural resources of the two countries. When the power pool is established in the future, both countries will be able to participate widely in term of receiving and supplying the power.

At present Electric Power between Cambodia and Thailand is transmitted at 22 kV and 115 kV levels. An agreement was signed with Trat Province (Thailand) to supply power to Koh Kong province (Cambodia) and Poit Pet (Cambodia) by using

22 kV line. The above areas have been connected since 2001. 115 kV transmission line from Aranya Prathet substation, Thailand connection to BTC, BTB and SRP was commissioned in 2007.

Power Interconnection with Vietnam

The Power Cooperation with Vietnam was signed in 10th June 1999. The agreement aims at the cooperation in Power Sector between the two countries. The supply of power to the areas along the border by medium voltage lines and interconnection between high voltage links is encouraged.

Since 2002, EDC has imported power from PC2 to supply to Memut and Ponhea Krek Districts of Kampong Cham Province, Bavet in Svay Rieng Province, Kampong Trach in Kampot Province, Koh Thom and Chrey Thom in Kandal Province, Snuol District in Kratie Province, Keo Seima District in Mondulkiri Province, Kompong Ro in Svay Rieng Province. The connection for import at Phnom Den Takeo Province was energized in 2009. The interconnection transmission project for importing power from Vietnam to Phnom Penh by 230 kV was energized in March 2009.

Power Interconnection with Lao PDR

The Power Cooperation with Lao PDR was signed in 21th October 1999. The agreement aims at the cooperation in Power Sector between the two countries. The supply of power to the areas along the border by medium voltage (22kV) lines and interconnection between high voltage links are also encouraged. The 22 kV interconnection line from Lao to Steung Treng was charged in 2010.

Both countries had discussed and agreed on power interconnection from Southern part of Lao PDR (Ban Hat, Cham Pasak Province) to Stung Treng of Cambodia by 115 kV line.

Sub-regional Interconnection

Interconnections between the isolated grids of the countries within the Mekong Basin (Cambodia, Laos, Thailand, Vietnam, Yunan-China and Myanmar) or even a further extension of this grid to include Malaysia and Singapore have been subjected to a number of studies which aim at improving the utilization of energy resources. The report of ASEAN interconnection Master plan has been adopted in 2002, presenting a clear study about the ASEAN interconnection. Meanwhile, the revision of the ASEAN Interconnection Master Plan is under study by the ASEAN study team.

The study provides mostly an assessment of the viability and priority of regional interconnections based on the pre-feasibility studies. The study has postulated an urgent need to develop ASEAN Power Grid (APG). The ASEAN Power Grid Consultative Committee (APGCC) has been established. However, among the 10 interconnection options studies, the link between Cambodia and Vietnam are ranked as fourth and classified as a potential short to medium term project for completion before 2010.

ELECTRICITE DU CAMBODGE
STATEMENT OF FINANCIAL POSITION
AS AT 31 DECEMBER 2013

	2013 KHR'000	2012 KHR'000
ASSETS		
Non-current assets		
Property, plant and equipment	1,978,103,106	1,652,736,044
Intangible assets	120,400	195,993
Other non-current assets	192,251,528	194,255,753
	2,170,475,034	1,847,187,790
Current assets		
Cash and cash equivalents	770,955,966	578,738,523
Trade and other receivables	553,722,959	373,215,974
Inventories	168,164,326	168,134,279
	1,492,843,251	1,120,088,776
Total Assets	3,663,318,285	2,967,276,566
EQUITY		
Assigned capital	680,184,720	680,185,054
Retained earnings	815,340,771	512,017,298
	1,495,525,491	1,192,202,352
LIABILITIES		
Non-current liabilities		
Borrowings	1,225,470,798	958,626,156
Customer deposits	103,230,533	89,724,146
Provision for retirement benefit	2,595,564	1,961,385
Deferred tax liability-net	17,188,508	10,812,706
	1,348,485,403	1,061,124,393
Current liabilities		
Borrowings	144,284,304	145,177,973
Trade and other payables	619,473,366	536,924,009
Income tax	55,549,721	31,847,839
	819,307,391	713,949,821
TOTAL EQUITY AND LIABILITIES	3,663,318,285	2,967,276,566

ELECTRICITE DU CAMBODGE
STATEMENT OF COMPREHENSIVE INCOME
For the year ended 31 December 2013

	2013 KHR'000	2012 KHR'000
Revenue		
Electricity sales	2,624,680,302	2,253,164,604
Connection service fees	35,025,778	17,665,928
Other income	13,809,934	11,649,917
	2,673,516,014	2,282,480,449
Operating expenses		
Purchased power	(1,952,554,348)	(1,681,832,803)
Fuel costs	(38,791,976)	(69,308,114)
Import duty	(45,632,751)	(40,305,082)
Salaries and other benefits	(101,371,233)	(84,249,349)
Other operating expenses	(65,578,646)	(56,247,420)
Depreciation	(68,947,387)	(58,872,605)
Amortisation	(75,593)	(96,521)
	400,564,080	291,568,555
Operating profit	400,564,080	291,568,555
Net finance costs	(13,439,986)	(33,847,806)
Profit before income tax	387,124,094	257,720,749
Income tax expense	(83,800,621)	(55,269,095)
Net profit for the year/total	303,323,473	202,451,654
Comprehensive income for the year	303,323,473	202,451,654

ELECTRICITE DU CAMBODGE
STATEMENT OF CASH FLOWS
For the year ended 31 December 2013

	2013 KHR'000	2012 KHR'000
Cash flow from operating activities		
Profit for the year	303,323,473	202,451,654
Adjustments for:		
Depreciation and amortisation	69,022,980	58,969,126
Loss on disposal of property, plant and equipment	7,974,734	1,596,196
Foreign expense	2,853,971	(7,865,808)
Interest expense	9,580,934	34,482,370
Income tax expense	83,800,621	55,269,095
Addition/(reversal) of allowance for bad and doubtful debts	(2,615,781)	2,756,808
Allowance for retirement benefits	634,179	604,467
Allowance for inventory obsolescence	2,893,249	510,572
	477,468,360	348,774,480
Changes in:		
Trade and other receivables	(82,330,355)	(45,899,808)
Inventories	(65,664,872)	(80,909,003)
Other non-current assets	2,004,225	7,399,909
Trade and other payables	111,995,081	136,209,876
Customer deposits	13,506,387	11,465,438
 Net cash generated from operations	 456,978,826	 377,040,892
Interest paid	(39,135,183)	(42,247,897)
Interest tax paid	(53,614,412)	(31,814,007)
 Net cash generated from operating activities	 364,229,231	 302,978,988
 Cash flows from Investing activities		
Purchases of property, plant and equipment	(217,640,078)	(140,145,212)
Proceeds from disposal of property, plant and equipment	251,533	2,371,434
 Net cash used in investing activities	 (217,388,545)	 (137,773,778)
 Cash flow from financing activities		
Proceeds from borrowings	124,439,313	74,269,593
Payments on borrowings	(79,062,222)	(69,565,711)
Government grants	(334)	11,973
 Net cash generated from financing activities	 45,376,757	 4,715,855
Net increase in cash and cash equivalents	192,217,443	169,921,065
 Cash and cash equivalents at beginning of the year	 578,738,523	 408,817,458
 Cash and cash equivalents at end of the year	 770,955,966	 578,738,523