

អគ្គិសនីកម្ពុជា

ELECTRICITE DU CAMBODGE

ANNUAL REPORT 2012



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 2012. We are proud and appreciative of the achievements during 2012 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.

A handwritten signature in blue ink, which appears to read 'Tun Lean'.

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 2012. 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 demand, and improve the quality and reliability of supply.

During 2012, our energy sale increased by 31.60% over the previous year to reach 3,097.97 GWh. Meanwhile, our system loss was reduced to 6.50%. Our revenue grew by 24% over the previous year to reach 2,282 Billion Riels. We have a combined workforce of 2,935 staff members serving 460,993 customers.

During 2012, Kirirom III hydro power plant has completed its construction and put in operation that connected and supplied to the national grid via 115 kV transmission line through Kirirom I hydro power plant to Phnom Penh, and also increases import capacity from Vietnam up to 170 MW at the end of the year.

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 that permits the National Grid to be able to extended from a part of southern grid (Phnom Penh, Kandal, Kampong Speu, Takeo, Kampot and Kep) to northwestern grid (Battambang, Banteay Meanchey and Siem Reap) through Kampong Chhnang and Pursat provinces.

In addition, 230 kV transmission line from Kampot to Preah Sihanouk under ADB and JICA loans with a length of 88 km and another 230 kV transmission line from Phnom Penh to Kampong Cham with length of 110 km is under construction. These projects are expected to be completed in 2013.

In accordance with the strategy and the support by Royal Government of Cambodia (Royal Government Fund) on rural electrification sector, EDC has attracted various grants and loans that support by development partners such as: KfW, ADB, Aus-aid and China Exim Bank to implement grid expansion projects for rural electrification in many parts of Kingdom of Cambodia in which 15 provinces are under study with a total length over 6,000 km. Feasibility studies are being carried out for these projects and to be implemented in the following years.

In particular, 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 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, Pallin, Oddar Meanchey, Preah Vihear and Svay Rieng are under bidding preparation with the total length around 4,500 km.

Moreover, licensing holders (licensees) who provide electricity in their areas has signed 95 power purchase agreements rural electricity enterprises (REEs) with EDC for bulk supply.

This year, Rural Electrification Fund (REF) which was an independent institution is transferred to be a part of EDC and still continues its policy to encourage and develop rural electrification sector in whole country under the financial support by EDC.

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

We would like to take this opportunity to acknowledge the contribution and commitment of all our employees who 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**. We are grateful to the Ministry of Industry, Mines and Energy for their on-going sectorial 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 by all our client groups. In addition, we highly appreciate the continued assistance extended to us by all development partners and of a good professional and cooperative relationship by all 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' demand, improving 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 policies on poverty reductions, 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- Generation, transmission, and distribution of electric power with the purpose of meeting the demand of all category of buyers;
- 2- Export electric power to neighboring countries and import electricity from neighboring countries;
- 3- Construct and operate national electric grid for energy transmission in order to ensure adequate and quality supply ;
- 4- Construct and operate sub-transmission system for distribution of electricity and to facilitate connections and operations of EDC and other distribution systems;
- 5- Sell electric power and other related services;
- 6- Purchase, transfer, and exchange 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 has 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 1971 to 1979, the power sector in the country passed through two dangerous events: civil war (1971-1975) 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 few provinces continued 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 through-out Cambodia. EDC is a judicial organization with administrative, financial and managerial autonomy. EDC is responsible for its profit 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 2012, 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 three Deputy Managing Directors, eight Executive Directors. As of 2012, 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. Ros Chenda
Executive Director
Dept of Generation



Mr. Chea Sinhel
Executive Director
Dept of Business and Distribution



Mr. Nget Sokhan
Executive Director
Dept of Procurement

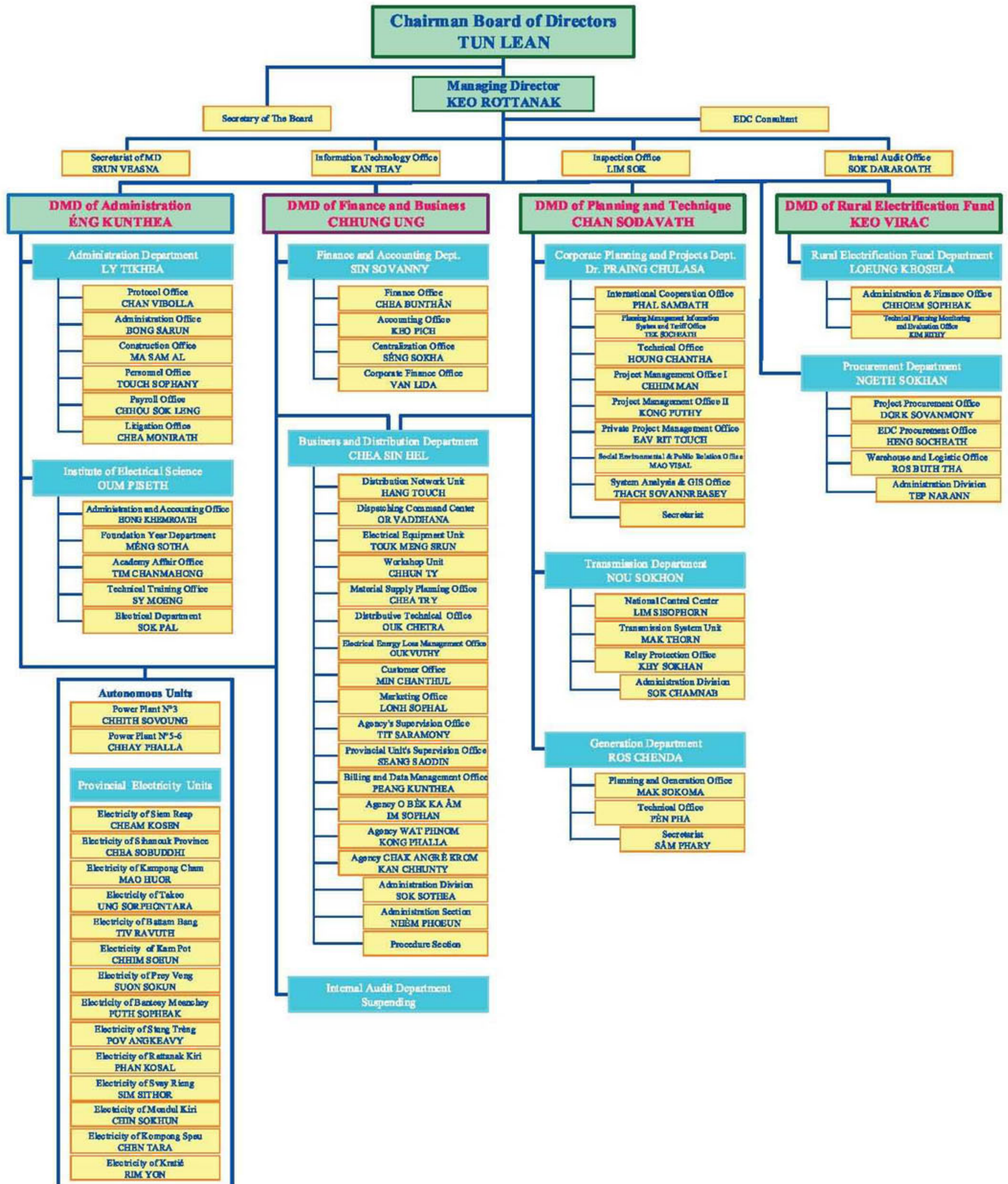


Mr. Oum Piseth
Executive Director
Institute of Electrical Science



Mr. Loeung Keosela
Executive Director
Dept of Rural Electrification Fund

Organization Chart of EDC



HUMAN RESOURCES DEVELOPMENT

In 2012, 1,026 trainees have been trained in 89 batches at the EDC's Institute of Electrical Science. The breakups of the trainees for different trainings are: 351 trainees on distribution network, 64 trainees on Power Plant Protection, 177 trainees on metering, 116 trainees on safety, 118 trainees on generation, 97 trainees on high voltage transmission line, 48 trainees on software program and 55 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 staffs.

Table 1: EDC's Staff from 2007 to 2012

Type	2007	2008	2009	2010	2011	2012
Doctorate	1	1	1	1	2	3
Post-graduated	71	85	91	104	119	142
Engineer & other graduated	381	390	446	551	672	822
Vocational Technicians	326	351	358	390	429	493
Skilled Workers	260	247	245	246	207	188
High school, Unskill	1,180	1,167	1,219	1,278	1,331	1,287
Total	2,219	2,241	2,360	2,570	2,760	2,935

The 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 the EDC.
- To provide its employee 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 2012, EDC imported 392,111,050 kWh from Thailand through 115 kV connection.

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 2012, EDC imported 1,219,519,956 kWh from Vietnam. In coming years this grid system is expected to get connected to more lines and substations and cover more areas and take the form of 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 2012 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, and GS4 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 own power plants (EDC) and IPPs and import from Vietnam. The installed capacity of generation plant of EDC is 44 MW and that of IPPs is 389.90 MW and import from Vietnam is about 170 MW. All power plants are located in the city except Kirirom I, Kirirom III and Kamchay hydro power plant with installed capacity of 12 MW, 18 MW and 194.1 MW which is located in Kampong Speu, Koh Kong and Kampot province.

In 2012, for the Phnom Penh System, the peak demand was 410 MW. The supply from generation and import in Phnom Penh System has increased from 1,918.52 GWh in 2011 to 2,479.73 GWh in 2012 and the system loss has decreased from 8.66% in 2011 to 8.63% in 2012.

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

The main operational features of power system in Siem Reap for 2012 are: available capacity 50.50 MW, peak demand 47.36 MW, energy received by import from Thailand at 115/22kV substation and own generation 268.43 GWh, total length of MV and LV lines 657.56 cct-km and number of customers 28,791.

SIHANOUKVILLE (SHV): Sihanoukville is the most stunning seaside tourist area, located in southwestern part of Cambodia. Earlier the power system in Sihanoukville was isolated and was supplied by Power Plants of IPP and EDC, together having an installed capacity of 19.60 MW. In 2012, under RETP project, the system has been connected to Kampot system, which imports power from Vietnam via 22 kV line. This has increased the availability of power resulting in supply to more areas and to other licensees in Sihanoukville Province. The annual power available was 90.02 GWh, peak demand 18.50 MW. The line length of MV and LV network was 297.70 cct-km and the number of customers in EDC distribution area were 12,246.

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 part of the system received imported power from Vietnam in 2012. The annual availability of power was 57.08 GWh, installed capacity 9.18 MW, peak demand 10.45 MW. The line length of MV and LV network was 145.45 cct-km with 12,239 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 is imported from Viet Nam since 2002 with the contracted capacity of 10 MW and in 2012 the import was 53.98 GWh. In 2012, the system had total MV and LV lines of 91.48 cct-km, and peak demand of 10.44 MW and 7,686 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 import of power from Thailand is connected with Siem Reap and Banteay Meanchey system. Battambang city is supplied from import from Thailand and generation from own power plant. The Battambang power system has an installed capacity of 23.20 MW, total MV and LV lines 642.91 cct-km. The energy available in 2012 was 105.99 GWh, peak demand 20.53 MW and 38,498 customers.

BANTEAY MEANCHEY (BTC) AND MONGKUL BOREI: Banteay Meanchey is located in northwestern part of Cambodia. Banteay Meanchey is supplied from import from Thailand and generation from own power plant. The installed capacity of power system is 23.08 MW. In 2012, the energy available was 40.13 GWh, peak demand of 8.82 MW. The line length of MV and LV network was 253.54 cct-km and 17,213 customers were 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 was connected to the Laos system at 22 kV since 2010. The system has an installed capacity of 5.64 MW (1.64 MW of generation and 4 MW imported from Laos), total MV and LV lines 132.93 cct-km. The peak demand in 2012 was 3.22 MW and the available energy was 9.01 GWh and 3,563 customers.

RATTANAKKIRI (RTK): Rattanakiri is situated bordering Vietnam's central highlands and Laos. The power system of Rattanakiri is with an installed capacity of 0.96 MW of own hydro generation, 7 MW imported from Vietnam via 35 kV sub-transmission line, has total MV and LV lines 130.30 cct-km. In 2012, the peak demand was 3.69 MW and annual available energy was 17.16 GWh and 3,538 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. In 2012, Takeo continues to have its own generation system with an installed capacity of 1.56 MW and 16 MW of import from Vietnam. It had a peak demand of 6.70 MW, total MV and LV line of 280.14 cct-km, energy available of 25.72 GWh and 11,201 customers.

KAMPOT (KPT): Kampot is located in the Southern part of the country. EDC's own power plant with an installed capacity of 3.08 MW and import from Viet Nam by 22 kV line via Kampong Trach (KGT) is used for supply to Kampot city. In 2012, generation and import was 14.41 GWh, peak demand 5.34 MW and a distribution system with total MV and LV lines 338.89 cct-km and 9,332 customers.

KAMPONG TRACH (KGT): The power system is in Kampot province, and it imports electricity from Viet Nam since 2002. In 2012 the contracted capacity is 10 MW and the system has total MV and LV lines 60.02 cct-km, available energy 17.05 GWh, peak demand 3.10 MW and 2,831 customers.

PREY VENG (PRV): Prey Veng is located in the south east of the country. The power system of Prey Veng City has generation with an installed capacity of 2.44 MW by EDC's own generation and also supply from Svay Rieng which imports power from Vietnam. The supply system has MV and LV line 112.44 cct-km, and peak demand of 3.15 MW. The energy available in 2012 was 11.65 GWh with 5,538 customers.

SVAY RIENG (SVR): Svay Rieng is located in the south-east of the country. The power supply is by import from Vietnam and own generation. Available capacity of power system is 7.80 MW, import and generation in 2012 were 26.99 GWh with peak demand 5.30 MW. The line length of MV and LV network was 417.51 cct-km and 10,298 customers.

BAVET (BVT): The power system for Bavet is in Svay Rieng province and supply is by import from Vietnam. In 2012, peak demand of 15.10 MW, energy imported of 74.02 GWh and 16 MW of import from Vietnam. Total MV and LV lines of 173.99 cct-km and the supply system had 4,518 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 and 300 kW of diesel generation. Under EDC control, in 2012 generation was 2.98 GWh with peak demand of 0.70 MW. The line length of MV and LV network was 109.39 cct-km and had 1,719 customers.

KEOSIEMA (KSM): The power system for Keosiema is in Mondulkiri province. Supply is by import from Vietnam with a contracted capacity of 1 MW. Import was 1.48 GWh with peak demand of 0.38 MW. The line length of MV and LV network was 63.65 cct-km and 1,202 customers.

KRATIE (KRT): The power system of Kratie was taken over by EDC in 2011. The isolated power system in Kratie is supplied by an IPP with an installed capacity of 2.72 MW. Under EDC control, in 2012 generation was 6.85 GWh with peak demand of 1.18 MW. The line length of MV and LV network was 135.54 cct-km and had 3,632 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 7.38 GWh with peak demand of 1.45 MW. The line length of MV and LV network was 32.58 cct-km and had 1,094 customers.

KAMPONG SPEU (KPS): In mid 2012, Kampong Speu was upgraded to province branch office while it has been under Phnom Penh System previously. This new provincial branch was in charge 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 42.27 GWh. The line length of MV and LV network was 151.67 cct-km, and 9,547 customers.

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

Year			2007	2008	2009	2010	2011	2012
Location	Capacity							
PHN	Installed		224.78	247.28	453.48	429.48	429.48	633.90
	Output		200.49	217.49	317.49	317.89	332.89	571.29
EDC	Installed		45.60	45.60	45.60	44	44	44
	Output		42.60	42.60	42.60	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
CETIC	IPP	Installed	12	12	12	12	12	12
		Output	11	11	11	11	11	11
Kirirom III	IPP	Installed	-	-	-	-	-	18
		Output	-	-	-	-	-	18
Kamchay	IPP	Installed	-	-	-	-	-	194.10
		Output	-	-	-	-	-	194.10
KEP	IPP	Installed	49.20	49.20	49.20	49.20	49.20	49.20
		Output	45	45	45	45	45	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	14	20.20	20.20	20.20	20.20
		Output	10	10	10	10	10	10
TH	IPP	Installed	10	10	10	-	-	-
		Output	8	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
		Output	-	7	7	7	7	7
West PP (VN)	IMP	Installed	-	-	200	200	200	200
		Output	-	-	100	120	135	170
Provinces		Installed	165.88	154.24	163.04	174.67	187.09	214.48
		Output	159.36	150.06	156.26	167.89	178.99	206.69
SRP	IPP	Installed	8.30	-	-	-	-	-
		Output	8.30	-	-	-	-	-
	EDC	Installed	10.50	10.50	10.50	10.50	10.50	10.50
		Output	10.50	10.50	10.50	10.50	10.50	10.50
	IMP	PPA	40	40	40	40	40	40
		Output	40	40	40	40	40	40
SHV	EDC	Installed	7.40	7.40	5.60	5.60	5.60	5.60
		Output	6.20	6.20	5	5	5	5
	IPP	Installed	8	8	14	14	14	14
		Output	7	7	10	10	10	10
KGC	IPP	Installed	3.40	7.68	7.68	7.68	7.68	7.68
		Output	1.90	7	7	7	7	7
	IMP	PPA	-	-	-	-	1.50	1.50
		Output	-	-	-	-	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

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

Year			2007	2008	2009	2010	2011	2012
Location		Capacity						
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
		Output	-	-	3	3	4	16
BTB	EDC	Installed	1.60	1.60	1.60	3.20	3.20	3.20
		Output	0.80	0.80	0.80	2.40	2.40	2.40
	IPP	Installed	7.62	-	-	-	-	-
		Output	6.10	-	-	-	-	-
	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	3	10	10	10
		Output	3	3	3	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
		Output	-	-	0.80	0.80	0.80	0.80
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
		Output	-	-	-	2	2	4
RTK	IPP	Installed	0.80	0.80	1.60	1.60	0.80	-
		Output	0.80	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
		Output	-	-	-	-	7	7
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	7.50	7
		Output	7.50	7.50	7.50	7.50	7.50	7
BVT	IMP	Installed	5	5	5	5	5	16
		Output	5	5	5	5	5	16
MDKR	EDC	Installed	-	-	-	0.67	0.67	0.67
		Output	-	-	-	0.67	0.67	0.67
	IMP	Installed	-	-	-	-	-	1
		Output	-	-	-	-	-	1

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

Year			2007	2008	2009	2010	2011	2012
Location	Capacity							
KSM	IMP	Installed	-	-	-	0.36	0.36	0.36
		Output	-	-	-	0.36	0.36	0.36
KRT	IPP	Installed	-	-	-	-	2.72	2.72
		Output	-	-	-	-	1.20	1.20
SNL	IMP	Installed	-	-	-	-	1	4
		Output	-	-	-	-	1	4
Total	Installed		390.66	401.52	616.52	604.15	616.57	848.69
	Output		359.85	367.55	473.75	485.78	511.88	777.98
Percentage , %			92.11%	91.54%	76.84%	80.41%	83.02%	91.67%

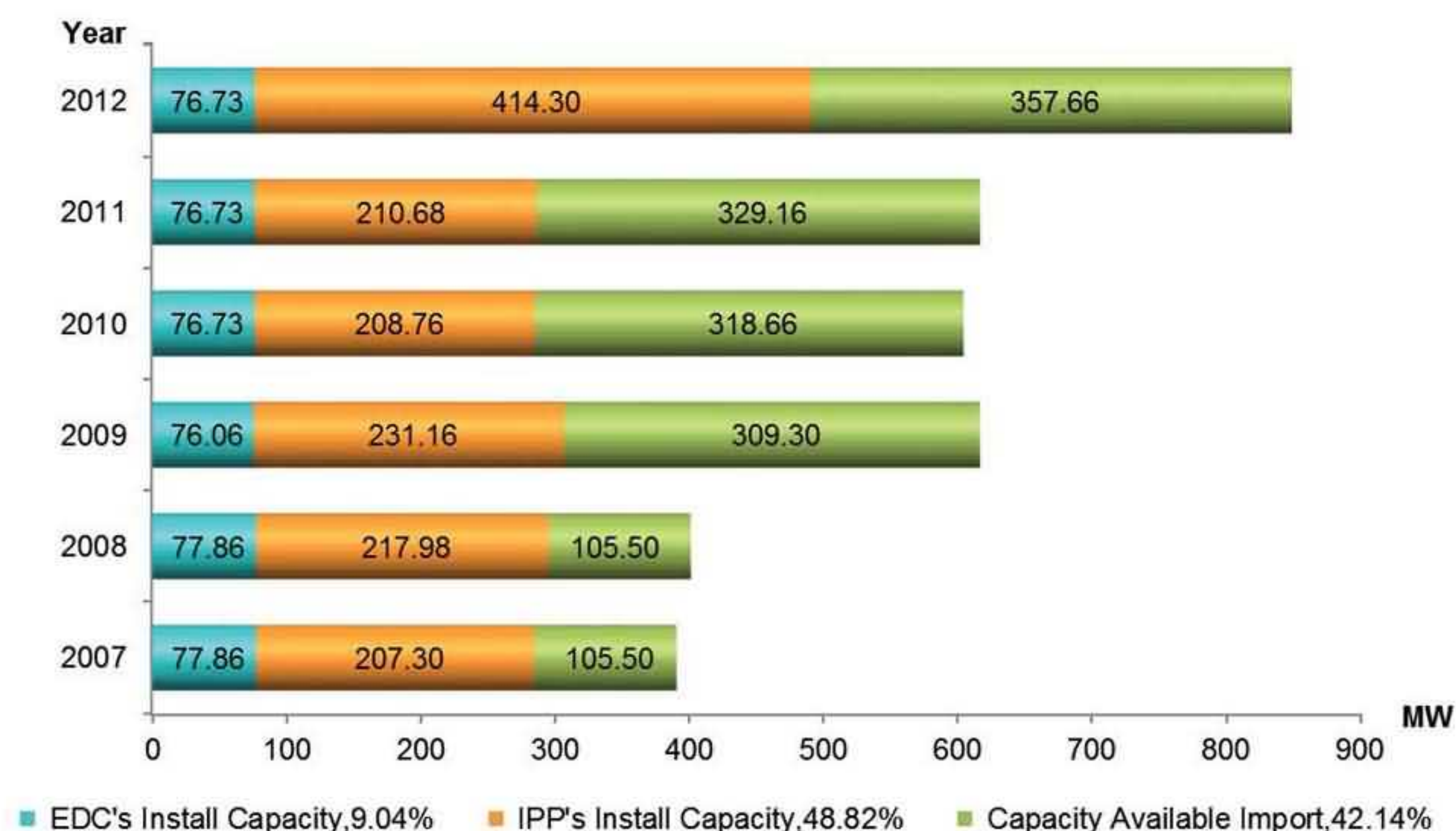


Figure 1: Install Capacity in 2012

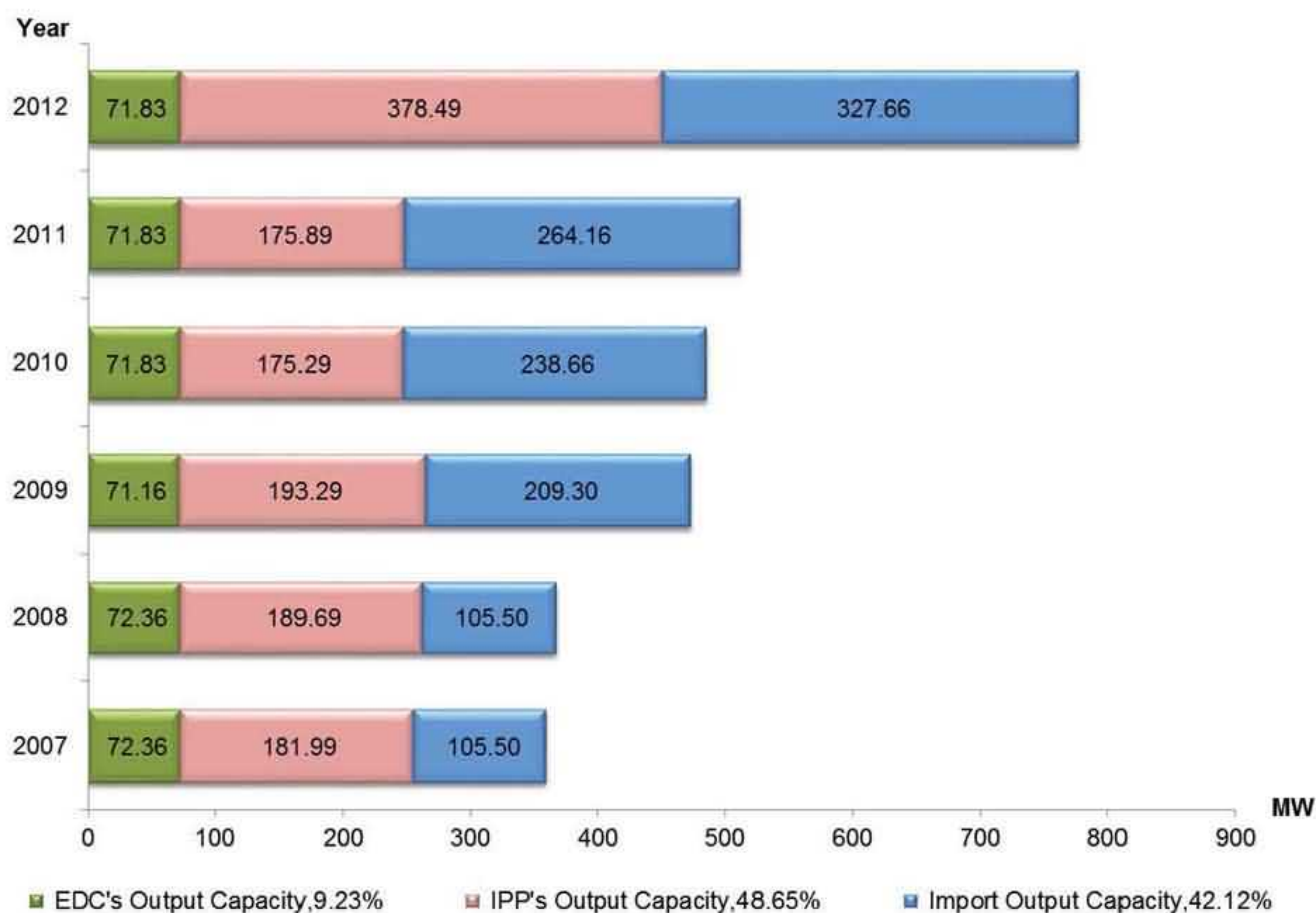


Figure 2: Output Capacity in 2012

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

Year	2007	2008	2009	2010	2011	2012
Location						
EDC Phnom Penh	1,109.55	1,275.80	1,375.94	1,699.86	1,918.52	2,479.73
EDC's	98.90	143.85	82.86	33.08	48.52	58.28
CUPL	258.49	258.71	182.22	120.21	133.41	132.14
Jupiter	-	-	-	-	-	-
CETIC	46.53	43.32	44.41	24.21	38.25	29.21
Kam Chay	-	-	-	-	-	396.38
Kirirom3	-	-	-	-	-	86.40
T.H	14.70	34.50	17.31	-	-	-
KEP	277.99	317.85	256.25	230.38	231.90	196.95
CITY POWER	38.24	41.82	34.11	18.23	25.26	15.79
CEP	315.55	325.88	269.48	247.29	227.70	209.46
COLBEN	54.02	46.45	53.24	35.80	34.17	31.07
S.L Garment	5.13	4.41	5.76	4.05	11.86	10.17
COLBEN PPSEZ	-	35.66	45.06	-	-	-
Suvannaphum	-	23.36	28.03	32.07	46.50	37.42
Thai	-	-	-	-	-	76.16
VN	-	-	357.21	954.55	1,120.96	1,198.96
PP Sugar	-	-	-	-	-	1.32

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

Year	2007	2008	2009	2010	2011	2012
Location						
EDC Province	268.56	349.62	441.93	542.63	645.55	830.32
SRP	100.58	136.9	165.20	193.98	214.15	268.43
SHV	37.62	46.73	51.16	64.96	76.22	90.02
KGC	11.65	15.54	25.27	34.95	38.46	57.08
PKK	16.56	18.37	26.92	25.98	32.27	39.94
MMT	12.6	9.19	10.56	10.40	11.26	14.03
TKO	4.38	5.75	7.39	9.28	13.11	25.72
BTB	24.66	32.26	38.25	49.73	67.83	105.99
KPT	5.62	7.8	10.17	20.82	32.75	14.41
KGT	2.14	3.91	5.39	8.68	14.92	17.05
PRV	2.35	2.8	3.36	4.68	6.60	11.65
BTC	10.33	14.18	19.16	24.63	28.37	40.13
STR	2.56	3.53	4.39	5.80	6.65	9.01
RTK	5.01	5.78	6.41	8.19	9.47	17.16
SVR	5.44	9.45	12.91	18.15	23.80	26.99
BVT	27.07	37.42	55.37	60.86	59.35	74.02
MDKR	-	-	-	1.10	2.34	2.98
KSM	-	-	-	0.45	1.03	1.48
KRT	-	-	-	-	2.32	6.84
SNL	-	-	-	-	4.64	7.38
Total	1,378.12	1,625.42	1,817.87	2,242.49	2,564.07	3,310.05

Table 4: Generation Sources from Power Plant and Import during 2012, GWh

LOCATION	EDC	IPP	IMPORT	TOTAL
EDC p.p	58.28	1,146.32	1,275.12	2,479.73
SRP	1.40	-	267.03	268.43
SHV	13.27	51.15	25.60	90.02
KGC	-	37.75	19.32	57.08
PKK	-	-	39.94	39.94
MMT	-	-	14.03	14.03
TKO	0.02	-	25.70	25.72
BTB	0.01	-	105.98	105.99
KPT	0.18	-	14.23	14.41
KGT	-	-	17.05	17.05
PRV	0.36	-	11.29	11.65
BTC	0.05	-	40.08	40.13
STR	0.12	-	8.89	9.01
RTK	-	3.60	13.56	17.16
SVR	0.14	-	26.85	26.99
BVT	-	-	74.02	74.02
MDKR	2.07	-	0.91	2.98
KSM	-	-	1.48	1.48
KRT	-	5.64	1.21	6.85
SNL	-	-	7.38	7.38
TOTAL	75.90	1,244.47	1,989.67	3,310.05

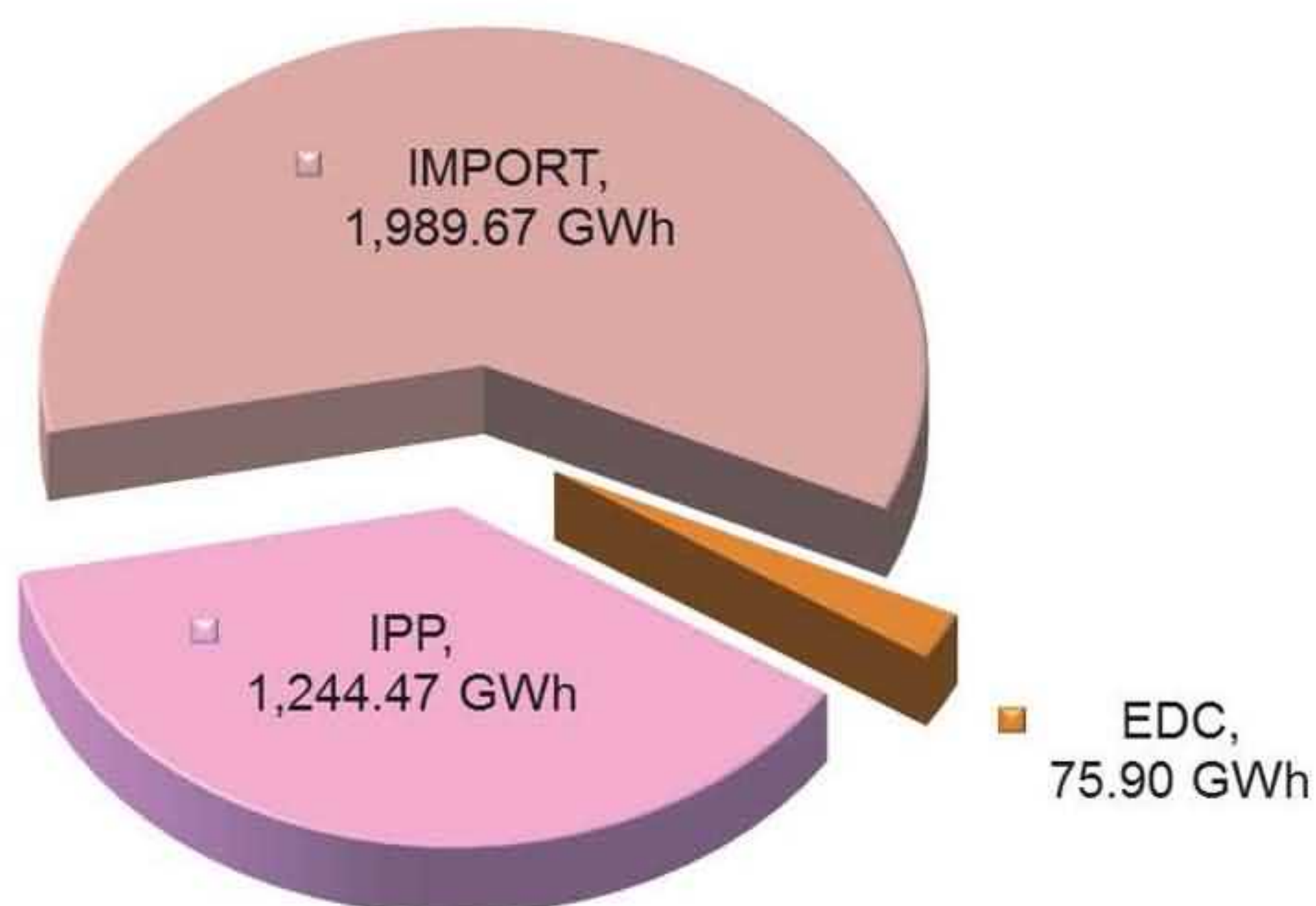


Figure 3: Power Generation by Sources In 2012

Table 5: Generation by types from Power Plant and Import during 2012, GWh

LOCATION	HFO	DO	HYDRO	Thermal Wood	COAL	IMPORT	TOTAL
PHN	642.57	1.13	511.99	11.50	37.42	1,275.12	2,479.73
SRP	1.09	0.31	-	-	-	267.03	268.43
SHV	64.40	0.02	-	-	-	25.60	90.02
KGC	37.75	-	-	-	-	19.32	57.08
PKK	-	-	-	-	-	39.94	39.94
MMT	-	-	-	-	-	14.03	14.03
TKO	-	0.02	-	-	-	25.70	25.72
BTB	-	0.01	-	-	-	105.98	105.99
KPT	-	0.18	-	-	-	14.23	14.41
KGT	-	-	-	-	-	17.05	17.05
PRV	-	0.36	-	-	-	11.29	11.65
BTC	-	0.05	-	-	-	40.08	40.13
STR	-	0.12	-	-	-	8.89	9.01
RTK	-	-	3.60	-	-	13.56	17.16
SVR	-	0.14	-	-	-	26.85	26.99
BVT	-	-	-	-	-	74.02	74.02
MDKR	-	0.25	1.81	-	-	0.92	2.98
KSM	-	-	-	-	-	1.48	1.48
KRT	-	5.64	-	-	-	1.20	6.85
SNL	-	-	-	-	-	7.38	7.38
TOTAL	745.81	8.24	517.40	11.50	37.42	1,989.67	3,310.05

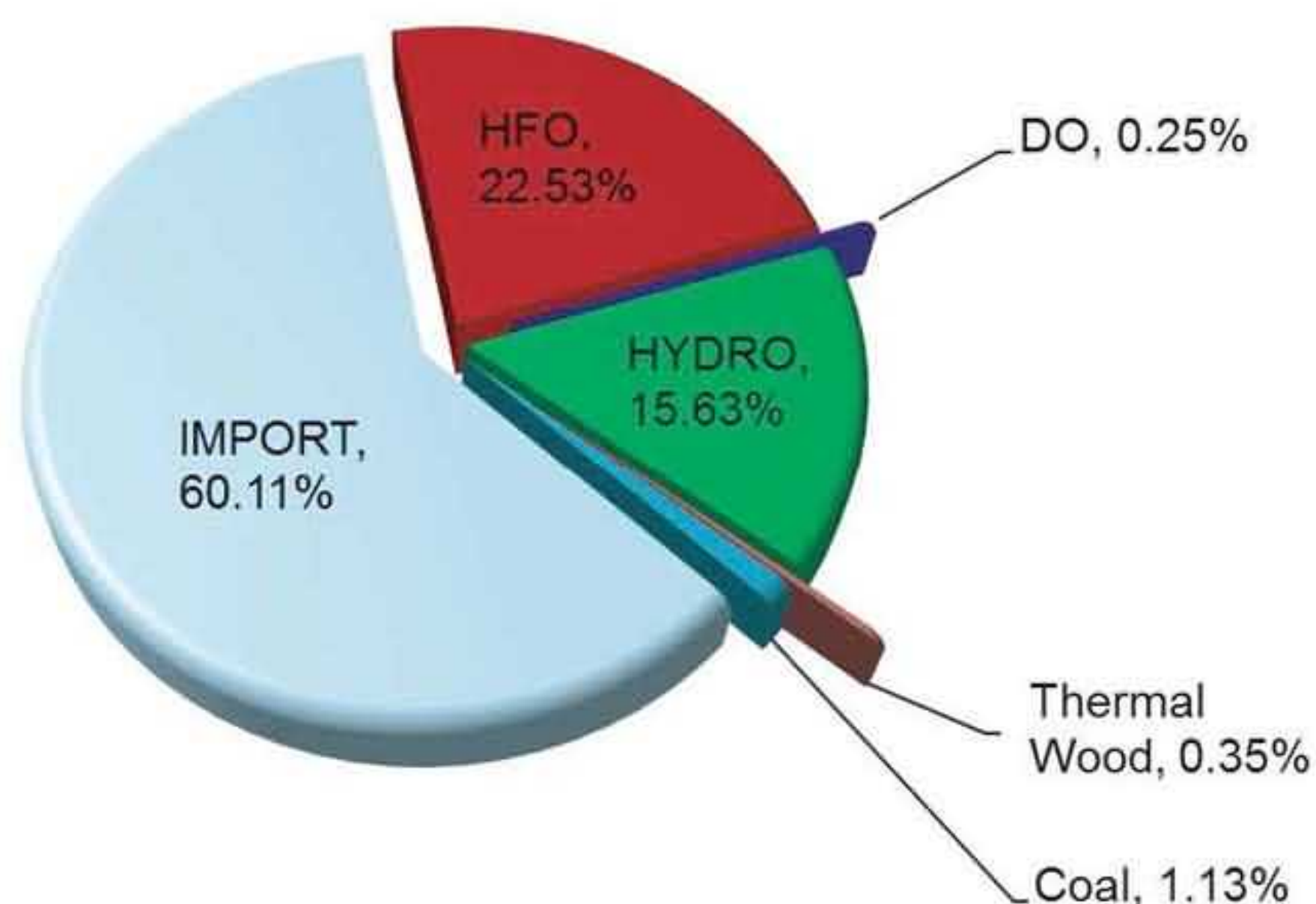
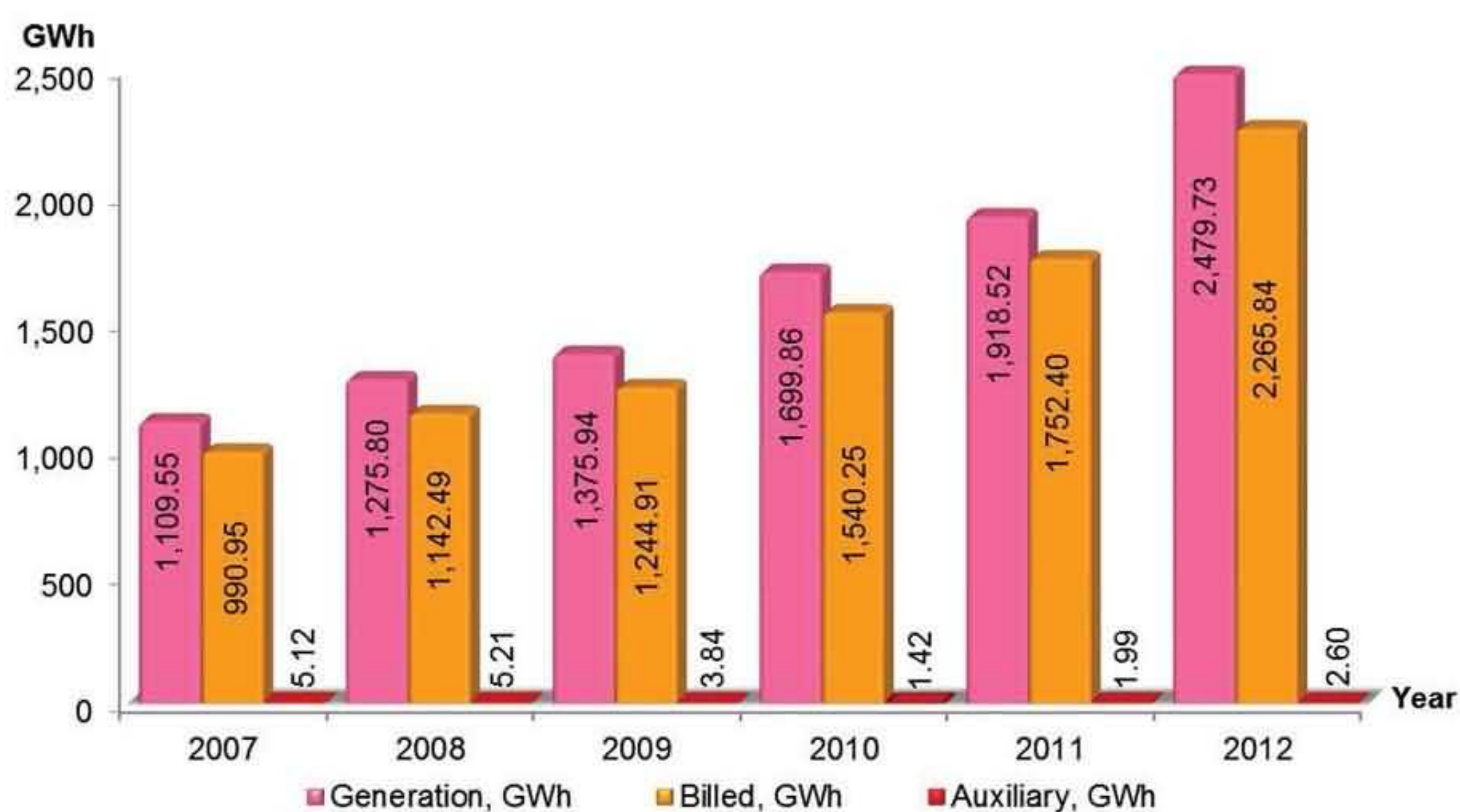


Figure 4: Generation by type in 2012

Table 6: Breakdown of Yearly Peak Demand, MW

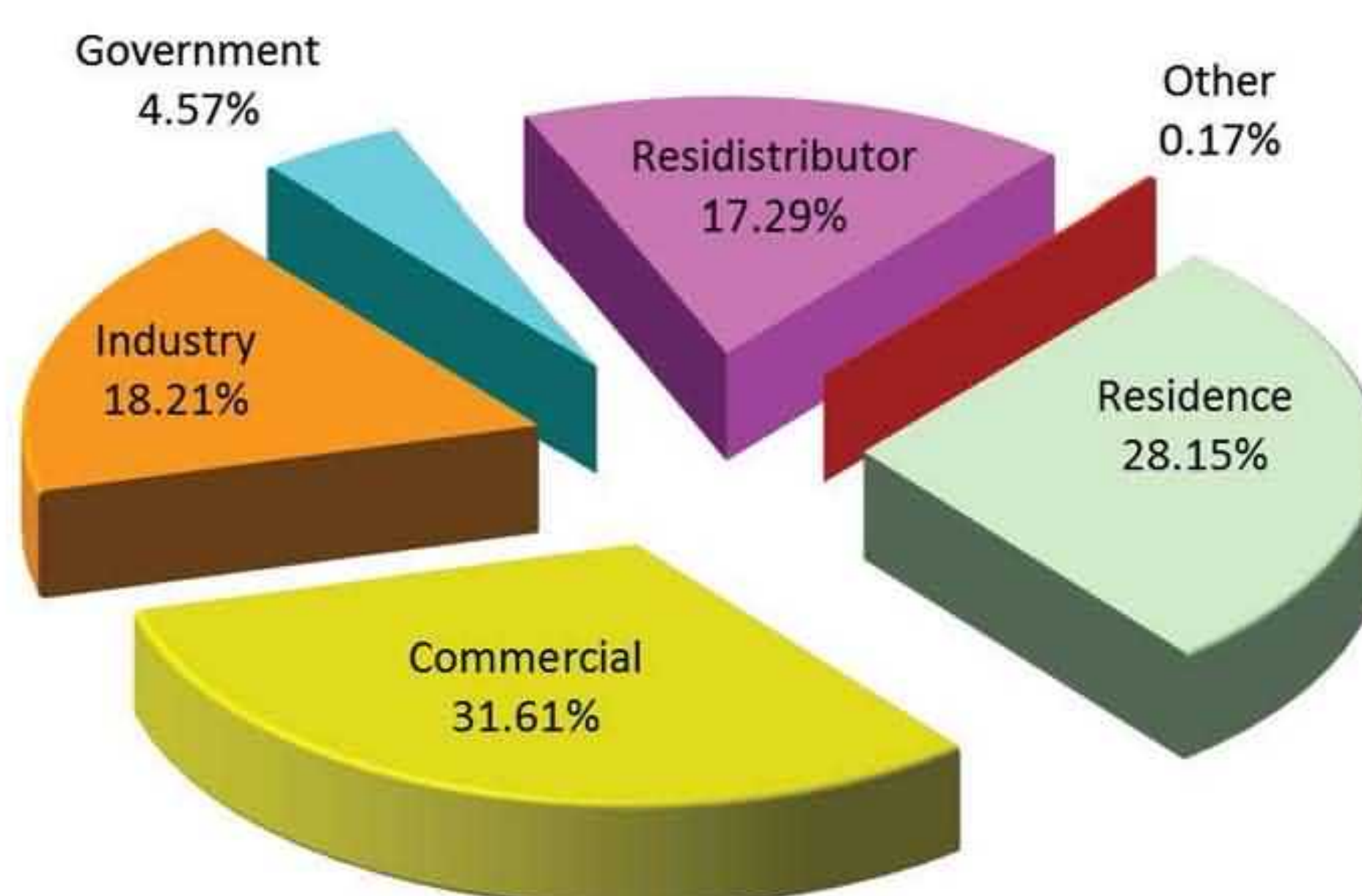
Location	2007	2008	2009	2010	2011	2012
PHN	204.50	239	244.10	300.20	349.40	410
SRP	18.94	27.59	29.98	34.97	39.07	47.36
SHV	8.60	9.50	10.17	13.40	16.40	18.50
KGC	2.48	2.48	6.80	7.30	8.45	10.45
PKK	4.10	4.10	5.50	5	6.50	6.50
MMT	3.80	3.80	3	3	3.94	3.94
TKO	1.15	1.39	2.26	2.68	4.73	6.70
BTB	5.55	7.02	7.98	10.45	16.77	20.53
KPT	1.34	1.85	2.36	4.52	5.47	5.34
KGT	0.66	0.83	1.20	2.13	2.38	3.10
PRV	0.64	0.83	0.79	0.93	1.46	3.15
BTC	2.64	3.94	4.32	5.51	6.28	8.82
STR	0.71	0.98	1.08	1.96	2.37	3.22
RTK	1.30	1.68	1.78	1.94	2.24	3.69
SVR	1.30	2.24	2.80	3.70	5.40	5.30
BVT	4.51	4.81	9.50	11	11.20	15.10
MDKR	-	-	-	0.46	0.62	0.70
KSM	-	-	-	-	-	0.38
KRT	-	-	-	-	2.08	1.18
SNL	-	-	-	-	-	1.45
TOTAL	262.17	312.04	333.62	409.14	484.76	575.41



**Figure 5: Break Down of Generation, Billed and Auxiliary
In Phnom Penh System from 2007 to 2012**

Table 7: Energy Sales, GWh

Year	2007	2008	2009	2010	2011	2012
PHN	990.95	1,142.49	1,246.53	1,540.25	1,752.40	2,265.84
SRP	83.14	117.29	145.12	170.97	188.26	237.30
SHV	32.46	41.26	45.48	58.13	68.99	79.75
KGC	9.65	13.26	22.23	31.31	34.95	52.30
PKK	15.73	17.43	25.56	24.99	30.63	37.91
MMT	11.94	8.69	10	9.80	10.56	13.12
TKO	4	5.11	6.62	8.41	11.91	23.52
BTB	21.17	28.59	34.27	45.41	62.95	98.72
KPT	4.95	7.01	9.09	15.21	30.67	48.59
KGT	2.06	3.68	5.11	8.20	14.62	16.70
PRV	1.97	2.41	2.88	4.17	5.97	10.66
BTC	8.79	12.65	17.28	22.62	26.12	36.50
STR	2.23	3.06	4.10	4.84	5.79	8.08
RTK	3.83	4.99	5.77	7.53	8.67	15.97
SVR	4.78	8.53	11.81	16.51	23.33	23.58
BVT	24.87	34.95	52.22	61.96	55.01	70.65
MDKR	-	-	-	0.83	2.09	2.61
KSM	-	-	-	0.37	1.01	1.48
KRT	-	-	-	-	2.25	5.92
SNL	-	-	-	-	2.16	6.49
KPS	-	-	-	-	15.97	42.27
TOTAL	1,222.52	1,451.42	1,644.07	2,031.50	2,354.29	3,097.97

**Figure 6: Energy Sale by Sector for Phnom Penh's System in 2012**

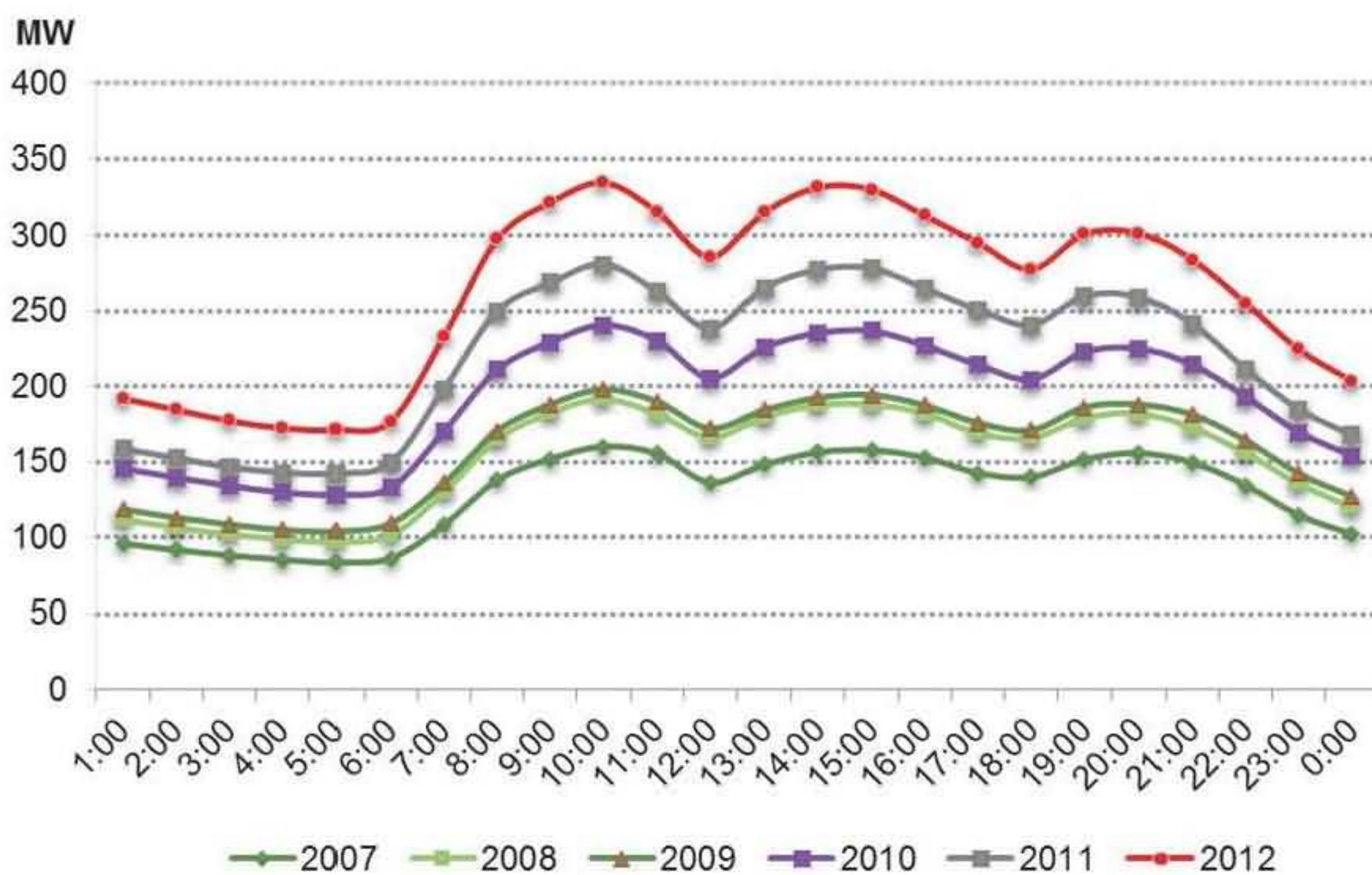


Figure 7: Average Daily Load Curve from 2007 to 2012 in Phnom Penh

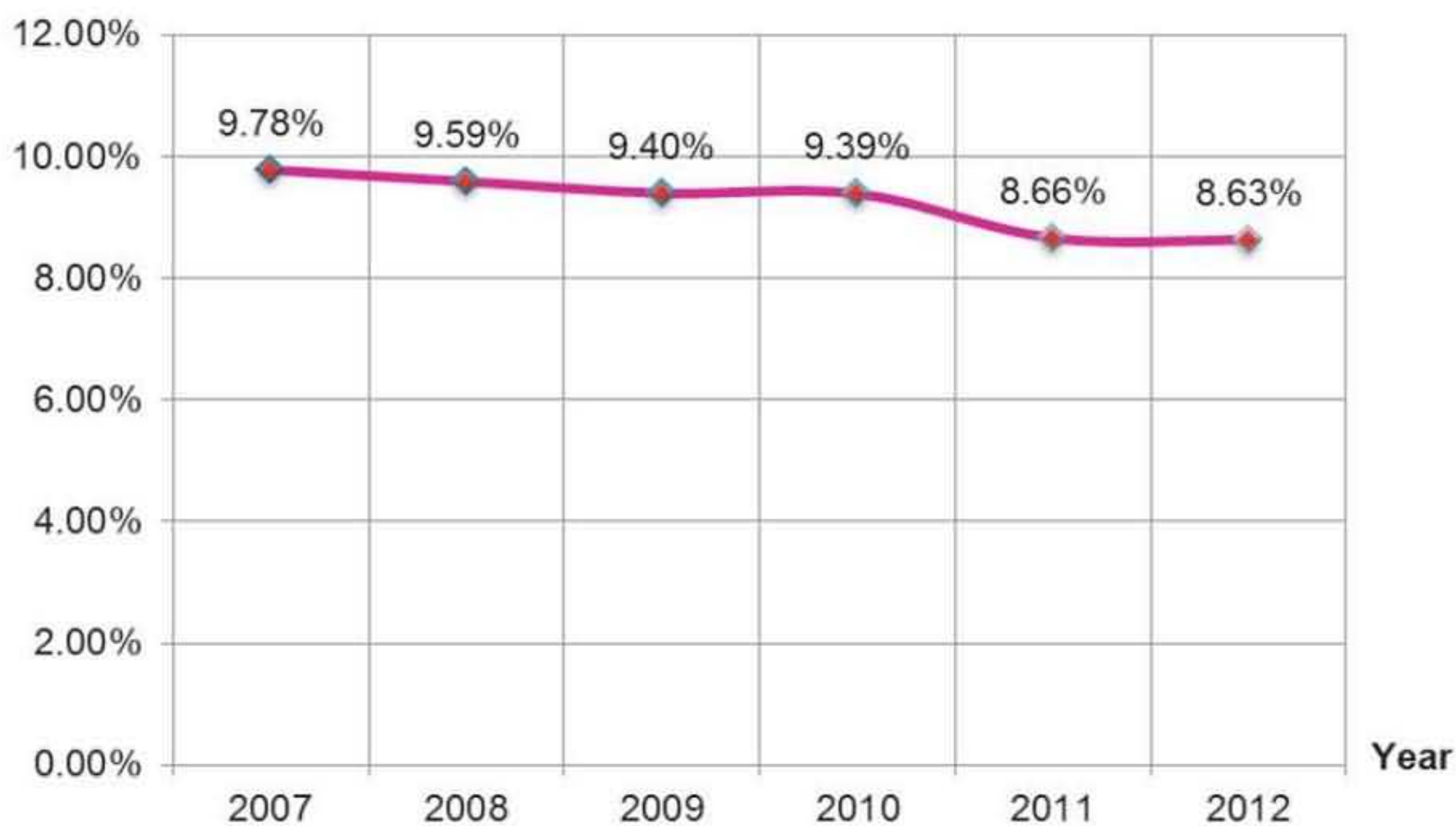


Figure 8: System Losses In Phnom Penh System from 2007 to 2012

Table 8: Customer from 2007 to 2012

Year	2007	2008	2009	2010	2011	2012
PHN	192,697	211,680	224,593	240,992	256,642	276,307
SRP	14,862	16,601	18,229	19,951	26,156	28,791
SHV	8,852	9,254	9,767	10,636	11,472	12,246
KGC	6,533	7,101	8,225	10,478	11,739	12,239
PKK	1,824	2,095	2,210	2,386	2,519	2,694
MMT	3,282	3,644	3,731	4,018	4,285	4,982
TKO	4,927	5,292	5,638	5,987	7,682	11,201
BTB	18,316	20,093	23,902	31,575	32,756	38,498
KPT	5,480	6,079	6,314	7,171	7,796	9,332
KGT	2,028	2,159	2,287	2,515	2,676	2,831
PRV	3,255	3,460	3,554	4,447	4,725	5,538
BTC	12,116	13,464	13,941	14,816	16,085	17,213
STR	2,158	2,378	2,502	2,636	3,090	3,563
RTK	2,569	2,667	2,770	2,910	3,197	3,538
SVR	5,717	7,325	8,565	10,795	11,390	10,298
BVT	2,044	2,213	2,301	2,495	2,562	4,518
MDKR	-	-	-	1,328	1,444	1,719
KSM	-	-	-	861	973	1,202
KRT	-	-	-	-	3,552	3,632
SNL	-	-	-	-	1,051	1,094
KPS	-	-	-	-	6,274	9,547
TOTAL	286,660	315,505	338,529	375,997	418,066	460,993

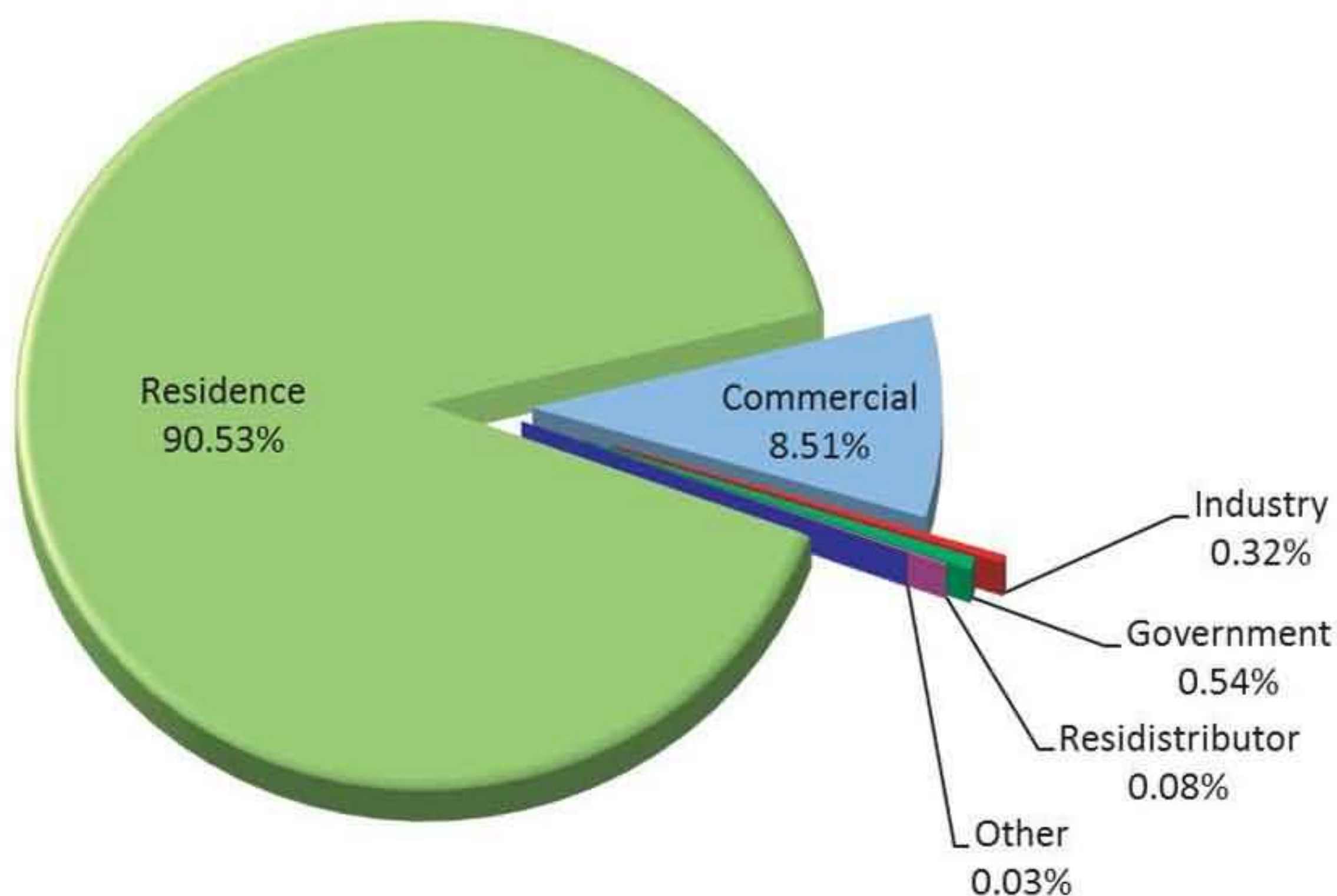


Figure 9: Customer by Type in EDC's System in 2012

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 PHN system by interlinking three grid substations.

The three provinces in 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 link 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 that permits the National Grid to be able to extended from a part of southern grid (Phnom Penh, Kandal, Kampong Speu, Takeo, Kampot and Kep) to northwestern grid (Battambang, Banteay Meanchey and Siem Reap) through Kampong Chhnang and Pursat provinces.

Table 9: Transmission Facilities

I	115 kV Transmission line	Circuit	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 KAMPONG SPEU	1	150	40.93	2002	BOT
4	GS KAMPONG SPEU - KIRIROM I	1	150	65.04	2002	BOT
5	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
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
Total length				405.53 km		

Table 9: Transmission Facilities (Con't)

II	230 kV Transmission line	Circuit	Section (mm ²)	Line Length (km)	Operation Year	Capital Source
1	Vietnam - Takeo	2	450	50	2009	ADB - NDF
2	Takeo - WPP (GS4)	2	630	47	2009	ADB - NDF
3	Takeo - Kampot	2	450	73	2011	KfW
4	Kampot - Kamchay Hydro Power Plant	2	630	11	2011	BOT
5	GS4 - NPP - Kampong Chhnang - Pursat - Battambang	2	630	293.38	2012	BOT
6	Pursat - Osom	2	630	132	2012	BOT
Total length				606.38 km		

Table 10: Grid Substation Facilities

No.	Grid Substation Name	Rate Voltage (kV)	Number	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	Kampong Speu	115/22	1	6.3	2002
5	Battambang	115/22	1	25	2007
6	Banteay Meanchey	115/22	1	25	2007
7	Siem Reap	115/22	1	50	2007
8	WPP (GS4)	230/115	2	200	2009
		115/22	2	50	
9	Takeo	230/22	1	16	2009
10	Kampot	230/22	1	50	2011
11	Kampong Chhnang	230/22	1	25	2012
12	Pursat	230/22	1	25	2012
13	Battambang	230/115/22	1	90	2012

The voltage of medium voltage systems of EDC generally is 22 kV. During 2009 and 2010, Distribution network in Phnom Penh, Kampong Speu, Prey Veng, Banlung (Rattanakiri), Stung Treng, and Sihanoukville 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 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, Pallin, Oddar Meanchey, Preah Vihear and Svay Rieng are under bidding preparation with the total length around 4,500 km.

Table 11: Distribution Facilities of EDC System

Location	Item	2007	2008	2009	2010	2011	2012
PHN & Kandal	Line Length, cct-km	1,459.53	1,518.54	1,602.85	1,877.16	2,058.16	2,572.53
	Medium Voltage	669.40	698.71	741.81	932.64	1,076.08	1,287.26
	Low Voltage	790.13	819.83	861.04	944.52	982.08	1,285.27
	# MV Substation	883	1,196	1,412	1,591	1,875	2,170
KPS	Line Length, cct-km	-	75.03	116.22	115.84	128.15	151.67
	Medium Voltage	-	20.13	61.32	60.94	74.07	95.88
	Low Voltage	-	54.90	54.90	54.90	54.08	55.79
	# MV Substation	-	22	23	23	62	71
SRP	Line Length, cct-km	168.25	277.03	287.19	417.02	626.10	657.56
	Medium Voltage	59.26	154.91	160.48	192.06	350.32	367.73
	Low Voltage	108.99	122.12	126.71	224.96	275.78	289.83
	# MV Substation	58	91	95	126	158	184
SHV	Line Length, cct-km	135.69	139.55	173.78	283.83	297.70	297.70
	Medium Voltage	65.09	65.09	99.32	203.36	203.96	203.96
	Low Voltage	70.60	74.46	74.46	80.47	93.74	93.74
	# MV Substation	58	64	69	144	155	178
KGC	Line Length, cct-km	116.63	50.08	52.60	141.62	144.01	145.45
	Medium Voltage	59.48	22.56	22.84	50.80	50.97	51.28
	Low Voltage	57.15	27.52	29.76	90.82	93.04	94.17
	# MV Substation	60	29	31	52	59	59
PKK	Line Length, cct-km	-	33.35	33.35	39.55	43.85	45.02
	Medium Voltage	-	22.55	22.55	23.59	26.90	27.12
	Low Voltage	-	10.80	10.80	15.96	16.95	17.90
	# MV Substation	-	29	29	27	31	31
MMT	Line Length, cct-km	-	42.41	45.17	46.37	46.46	46.46
	Medium Voltage	-	21.64	23.10	23.10	23.17	23.17
	Low Voltage	-	20.77	22.07	23.27	23.29	23.29
	# MV Substation	-	27	30	31	37	37
TKO	Line Length, cct-km	104.17	105.39	104.17	105.93	280.14	280.14
	Medium Voltage	31.30	31.30	31.29	31.77	158.31	158.31
	Low Voltage	72.88	74.10	72.88	74.16	121.83	121.83
	# MV Substation	28	29	31	31	101	104
BTB	Line Length, cct-km	148.79	172.11	216.21	248.73	642.89	642.91
	Medium Voltage	38.42	56.18	44.05	74.89	401.03	401.03
	Low Voltage	110.36	115.93	172.16	173.84	241.86	241.88
	# MV Substation	47	55	96	79	227	228
KPT	Line Length, cct-km	121.19	92.29	94.78	147.67	289.86	338.89
	Medium Voltage	47.35	32.77	32.77	68.42	205.61	226.64
	Low Voltage	73.84	59.51	62.01	79.25	84.25	112.25
	# MV Substation	24	28	30	38	71	90

Table 11: Distribution Facilities of EDC System (Con't)

Location	Item	2007	2008	2009	2010	2011	2012
KGT	Line Length, cct-km	-	39.73	39.93	45.18	45.42	60.02
	Medium Voltage	-	21.68	21.68	25.05	25.05	39.45
	Low Voltage	-	18.05	18.25	20.13	20.37	20.57
	# MV Substation	-	13	12	24	31	36
PRV	Line Length, cct-km	45.31	45.72	83.19	100.27	100.27	112.44
	Medium Voltage	10.07	10.32	47.79	53.12	53.12	55.62
	Low Voltage	35.24	35.40	35.40	47.15	47.15	56.82
	# MV Substation	13	14	14	17	17	20
BTC	Line Length, cct-km	183.08	146.68	146.69	136.40	159.71	171.32
	Medium Voltage	43.61	33.66	33.66	29.50	41.42	46.26
	Low Voltage	139.47	113.03	113.03	106.90	118.29	125.06
	# MV Substation	40	32	32	33	39	50
MKB	Line Length, cct-km	-	46.10	46.95	49.60	63.89	82.22
	Medium Voltage	-	13.40	14.25	15.37	29.66	45.48
	Low Voltage	-	32.70	32.70	34.23	34.23	36.74
	# MV Substation	-	13	13	17	26	35
STR	Line Length, cct-km	-	47.23	111.43	74.06	132.93	132.93
	Medium Voltage	-	12.98	77.18	39.81	92.18	92.18
	Low Voltage	-	34.25	34.25	34.25	40.75	40.75
	# MV Substation	-	12	12	14	25	23
RTK	Line Length, cct-km	53.03	53.03	56.02	54.12	124.42	130.30
	Medium Voltage	21.69	21.69	24.28	20.29	90.18	90.25
	Low Voltage	31.34	31.34	31.74	33.83	34.24	40.05
	# MV Substation	14	19	13	14	30	50
SVR	Line Length, cct-km	28.97	209.27	212.37	218.36	406.17	417.51
	Medium Voltage	10.71	120.29	121.99	127.98	314.00	325.34
	Low Voltage	18.26	88.98	90.38	90.38	92.17	92.17
	# MV Substation	24	40	40	53	56	71
BVT	Line Length, cct-km	-	30.35	30.35	31.74	39.68	173.99
	Medium Voltage	-	11.21	11.21	11.21	11.95	141.19
	Low Voltage	-	19.14	19.14	20.53	27.73	32.80
	# MV Substation	-	31	32	35	50	50

Table 11: Distribution Facilities of EDC System (Con't)

Location	Item	2007	2008	2009	2010	2011	2012
MDKR	Line Length, cct-km	-	-	-	61.67	64.48	109.39
	Medium Voltage	-	-	-	29.67	32.24	68.93
	Low Voltage	-	-	-	32	32.24	40.46
	# MV Substation	-	-	-	40	42	49
KSM	Line Length, cct-km	-	-	-	44	44	63.65
	Medium Voltage	-	-	-	20	20	32.50
	Low Voltage	-	-	-	24	24	31.15
	# MV Substation	-	-	-	16	16	22
KRT	Line Length, cct-km	-	-	-	-	46.79	135.54
	Medium Voltage	-	-	-	-	28.75	116.84
	Low Voltage	-	-	-	-	18.04	18.70
	# MV Substation	-	-	-	-	13	44
SNL	Line Length, cct-km	-	-	-	-	-	32.58
	Medium Voltage	-	-	-	-	-	19.07
	Low Voltage	-	-	-	-	-	13.51
	# MV Substation	-	-	-	-	-	25
Total	Line Length, cct-km	2,564.64	3,123.89	3,453.25	4,239.12	5,785.08	6,800.22
	Medium Voltage	1,056.38	1,371.07	1,591.57	2,033.57	3,308.97	3,915.49
	Low Voltage	1,508.26	1,752.83	1,861.68	2,205.55	2,476.11	2,884.73
	# MV Substation	1,249	1,744	2,014	2,405	3,121	3,627

Rural Electrification Fund of EDC

Establishment of Rural Electrification Fund (REF)

The Royal Government of Cambodia (RGC) issued the Royal Decree for establishment of REF in 2004, to accelerate the development of electric power supply in rural areas in Cambodia. Then on 22 August 2012, RGC issued new Royal Decree on amendment of some articles of the old Royal Decree to integrate REF with EDC, to allow Cambodia itself independently and able to continue its activities, and still receivable the grant from external fund sources to assist in development of rural electrification.

Work progress of REF after integration with EDC until the end of 2012

1. **Program allowance to the licensees for a new electricity connection:** This Program help people in rural areas that living around the area of electricity but not supply electricity distribution network yet. The supply of electricity, 50,000 households including rural household in 15 provinces of the power supply.
2. **Solar Home Systems (SHS) program:** This program help rural households which living remote areas that network power cannot extend to long-term electricity use of 12,000 households in one household and one system which is 50 watts or 30 watts, including far rural households in 8 provinces that is provided solar system for producing electricity used by each household.
3. **Power to the Poor (P2P) program:** For facilitating the rural poor households connect electricity from the electricity distribution network of electricity supplier which provide interest free loan to 135 rural households in Takeo province.
4. **Program for providing assistance to improve existing and/or develop new electricity infrastructure in rural areas:** for facilitating the private licensees to access fund for investing on electricity infrastructure in rural area.

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 to minimize 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 Southern Grid which includes Phnom Penh. The Table below depicts the expected power demand and energy output for Cambodia.

Table 12: Cambodia's Power Demand Forecasting

Base Case	2012	2015	2020
Peak in Main Grid (MW)	575.41*	814	1,452
Peak in Whole Country (MW)	762	1,078	1,699
Energy in Main Grid (GWh)	3,310.05*	4,499	8,019
Energy in Whole Country (GWh)	3,914	5,717	9,205

* Peak Demand and Energy in Main Grid are actual data in 2012

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.

- Expand hydro development based initially on smaller size hydro which are easily accessible such as Kirirom, and subsequently mid and large size hydro projects like Stueng Atay, Middle Stueng Russei Chrum, Battambang, Lower Srepok II or Lower Sesan.

Generation Development Plan 2013 - 2020

No.	Project Name	Type	Capacity (MW)	Operation Year
1	100 MW Coal Power Plant (CEL) in Sihanouk Ville	Coal	100	2013
2	Stueng Atay Hydro Power Plant	Hydro	120	2013
3	Stueng Tatay Hydro Power Plant	Hydro	246	2014
4	Lower Stueng Russey Chhrum Hydro Power Plant	Hydro	338	2014
5	700 MW Coal Power Plant (CIIDG) in Sihanouk Ville - Phase 1	Coal	240	2015
6	Lower Sesan II Hydro Power Plant	Hydro	400	2016
7	700 MW Coal Power Plant (CIIDG) in Sihanouk Ville - Phase 2	Coal	120	2017
8	Stueng Chay Areng Hydro Power Plant	Hydro	108	2017
9	Srepok III + Srepok IV Hydro power plants	Hydro	565	2018
10	700 MW Coal Power Plant (CIIDG) in Sihanouk Ville - Phase 3	Coal	340	2019
11	Sambor Hydro Power Plant	Hydro	450	2019
12	Coal Power Plant (III) or Gas Power Plant	Coal/Gas	400	2020
Total			3,427 MW	

Transmission Master Plan

Transmission Development Plan 2013 - 2020

No.	115 kV Transmission Line	Circuit	Length (km)	Year	Development Partner
1	Atay Hydro - Osom	2	10	2013	BOT
2	Steung Hav - Sihanouk Ville	2	12	2014	JICA
3	Phnom Penh loop line	2	42	2014	China Exim Bank
4	Doun Yoy - Banteay Meas	1	12	2014	EDC
5	Kirirom III - Sre Ambel	1	15	2014	EDC
6	GS Siem Reap - New GS East Siem Reap	1	25	2014	BOT
7	Phnom Penh (SPP) - Prey Veng - Svay Rieng	2	160	2015	China Exim Bank
8	Sre Ambel - Koh Kong (Structure for 230 kV line)	1	100	2016	Request to AFD
9	Kampong Cham - Kratie (Western Part of Mekong River)	1	100	2016	Request to AFD
10	Underground line from GS1 - EDC	1	2.33	2016	JICA
11	Underground line from EDC - Hunsen Park	1	3.33	2016	JICA

Transmission Development Plan 2013 - 2020 (Con't)

No.	115 kV Transmission Line	Circuit	Length (km)	Year	Development Partner
12	Underground line from Hunsen Park - GS2	1	3.81	2016	BT
13	Underground line from Hunsen Park - Olympic Stadium	1	3.33	2016	JICA
14	Underground line from Olympic Stadium - GS3	1	4.37	2016	JICA
15	From the midpoint of WPP and NPP - GS5	1	9.18	2017	LDP
16	Underground line from GS5 - NCC	1	9.21	2017	LDP
17	Underground line from NCC - GS3	1	0.65	2017	LDP
18	GS5 - Chroy Chanvar Plan 1	1	16.82	2017	LDP
19	Kratie - Snuol - Mondul kiri	-	185	2019	LDP
20	Kampong Thom (GS KGT) - Preah Vihear	-	130	2020	LDP
21	Banteay Meanchey - Odor Meanchey	-	105	2020	LDP
Total Length			949.03 km		

No.	230 kV Transmission Line	Circuit	Length (km)	Year	Development Partner
1	Kampot - Steung Hav (SHV)	2	88	2013	ADB - JICA
2	Phnom Penh(NPP) - Kampong Cham	2	110	2013	BOT
3	Osom - Lower Reussey Chrum Hydro power	2	40.86	2013	BOT
4	Lower Reussey Chrum Hydro power - Tatay Hydro	2	38.14	2014	BOT
5	Phnom Penh loop line (WPP - SPP)	2	48	2014	China Exim Bank
6	Kampong Cham - Kratie	2	130	2015	BOT
7	Kratie - Steung Treng	2	126	2016	Indian Exim Bank
8	Steung Treng - Laos	2	56	2016	BOT
9	Phnom Penh - Sihanouk ville (Along National Road No.4)	2	220	2016	BOT
10	Tatay - Cheay Areng	2	32	2017	BOT
11	Chey Areng - Phnom Penh (NPP)	2	145	2017	BOT
12	Sesan II - Steung Treng	2	36	2017	BOT
13	Phnom Penh loop line 2nd Phase (SPP - EPP - NPP)	2	65	2018	LDP
14	Kampong Cham - Kampong Thom (GS KGT) - Siem Reap	2	250	2019	LDP
15	Battambang - East Siem Reap	-	80	2019	LDP
16	Steung Treng - Ratanak kiri - Sesan III	-	165	2020	LDP
Total Length			1,630 km		

* LDP : Looking for Development Partner

Power Interconnection with Thailand

The Power Cooperation Agreement (MOU) with Thailand was signed on 3rd February 2000. This MOU provided a framework for the power trade and technical assistant between these two countries and opens the power access to the third countries. The 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 will be established, both countries can be participated 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. Recently, 115 kV transmission line from Arranh Prathet substation, Thailand connection to BTC, BTB and SRP has been commissioned in 2007.

Power Interconnection with Viet Nam

The Power Cooperation with Viet Nam 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 line and interconnection between high voltage links are 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 Monduliri 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 import power from Viet Nam to Phnom Penh by 230 kV has been 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) line and interconnection between high voltage links are also encouraged. The 22 kV interconnection line from Lao to Steung Treng was charged during 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, Viet Nam, 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 Viet Nam are ranked as fourth and classified as a potential short to medium term project for completion before 2010.



Figure 10: Transmission Line Development Plan 2013 - 2020

ELECTRICITE DU CAMBODGE
BALANCE SHEET
AS AT 31 DECEMBER 2012

	2012 KHR'000	2011 KHR'000
ASSETS		
Non-current assets		
Property, plant and equipment	1,652,736,044	1,226,183,735
Intangible assets	195,993	292,514
Other non-current assets	194,255,753	201,655,662
	1,847,187,790	1,428,131,911
Current assets		
Cash and cash equivalents	578,738,523	408,817,458
Trade and other receivables	373,215,974	287,024,944
Inventories	168,134,279	141,853,139
	1,120,088,776	837,695,541
Total Assets	2,967,276,566	2,265,827,452
EQUITY		
Assigned capital	680,185,054	680,173,081
Retained earnings	512,017,298	309,565,644
	1,192,202,352	989,738,725
LIABILITIES		
Non-current liabilities		
Borrowings	958,626,156	591,915,355
Customer deposits	89,724,146	78,258,708
Provision for retirement benefit	1,961,385	1,356,918
Deferred tax liability-net	10,812,706	5,752,559
	1,061,124,393	677,283,540
Current liabilities		
Borrowings	145,177,973	169,485,555
Trade and other payables	536,924,009	408,479,660
Income tax	31,847,839	20,839,972
	713,949,821	598,805,187
TOTAL EQUITY AND LIABILITIES	2,967,276,566	2,265,827,452

ELECTRICITE DU CAMBODGE
INCOME STATEMENT
For the year ended 31 December 2012

	2012 KHR'000	2011 KHR'000
Revenue		
Electricity sales	2,253,164,604	1,808,509,354
Connection service fees	17,665,928	15,691,822
Other income	11,649,917	18,025,953
	2,282,480,449	1,842,227,129
Operating expenses		
Purchased power	(1,681,832,803)	(1,348,820,232)
Fuel costs	(69,308,114)	(60,830,107)
Import duty	(40,305,082)	(35,821,899)
Salaries and other benefits	(84,249,349)	(65,436,166)
Other operating expenses	(56,247,420)	(48,368,994)
Depreciation	(58,872,605)	(49,683,369)
Amortisation	(96,521)	(108,618)
Operating profit	291,568,555	233,157,744
Net finance costs	(33,847,806)	(40,710,828)
Profit before income tax	257,720,749	192,446,916
Income tax expense	(55,269,095)	(42,656,940)
Net profit for the year/total		
Comprehensive income for the year	202,451,654	149,789,976

ELECTRICITE DU CAMBODGE
STATEMENT OF CASH FLOWS
For the year ended 31 December 2012

	2012 KHR'000	2011 KHR'000
Cash flow from operating activities		
Profit before income tax	257,720,749	192,446,916
Adjustments for:		
Depreciation and amortisation	58,969,126	49,791,987
Revenue from transfer of assets from customers	-	(9,010,141)
Loss on disposal of property, plant and equipment	1,596,196	598,173
Foreign expense	(7,865,808)	(2,065,749)
Interest expense	34,482,370	37,707,767
Addition/(reversal) of allowance for bad and doubtful debts	2,756,808	(4,292,253)
Allowance for retirement benefits	604,467	492,783
Allowance for inventory obsolescence	510,572	3,994,905
	348,774,480	269,664,388
Changes in:		
Trade and other receivables	(45,899,808)	(31,620,486)
Inventories	(80,909,003)	(67,392,929)
Other non-current assets	7,399,909	(7,370,305)
Trade and other payables	136,209,876	51,011,287
Customer deposits	11,465,438	10,093,919
	<hr/>	<hr/>
Net cash generated from operations	377,040,892	224,385,874
Interest paid	(42,247,897)	(14,509,745)
Interest tax paid	(31,814,007)	(48,558,124)
Net cash generated from operating activities	302,978,988	161,318,005
Cash flows from Investing activities		
Purchases of property, plant and equipment	(140,145,212)	(68,884,618)
Proceeds from sale of property, plant and equipment	2,371,434	7,057,087
Net cash used in investing activities	<hr/> (137,773,778)	<hr/> (61,827,531)
Cash flow from financing activities		
Proceeds from borrowings	74,269,593	22,909,596
Payments on borrowings	(69,565,711)	(3,040,124)
Government grants	11,973	-
Net cash generated from financing activities	<hr/> 4,715,855	<hr/> 19,869,472
Net increase in cash and cash equivalents	169,921,065	119,359,946
Cash and cash equivalents at beginning of the year	<hr/> 408,817,458	<hr/> 289,457,512
Cash and cash equivalents at end of the year	<hr/> 578,738,523	<hr/> 408,817,458