ENVIS CENTRE, CHANDIGARH
NewsLetter
Paryavaran - Patra
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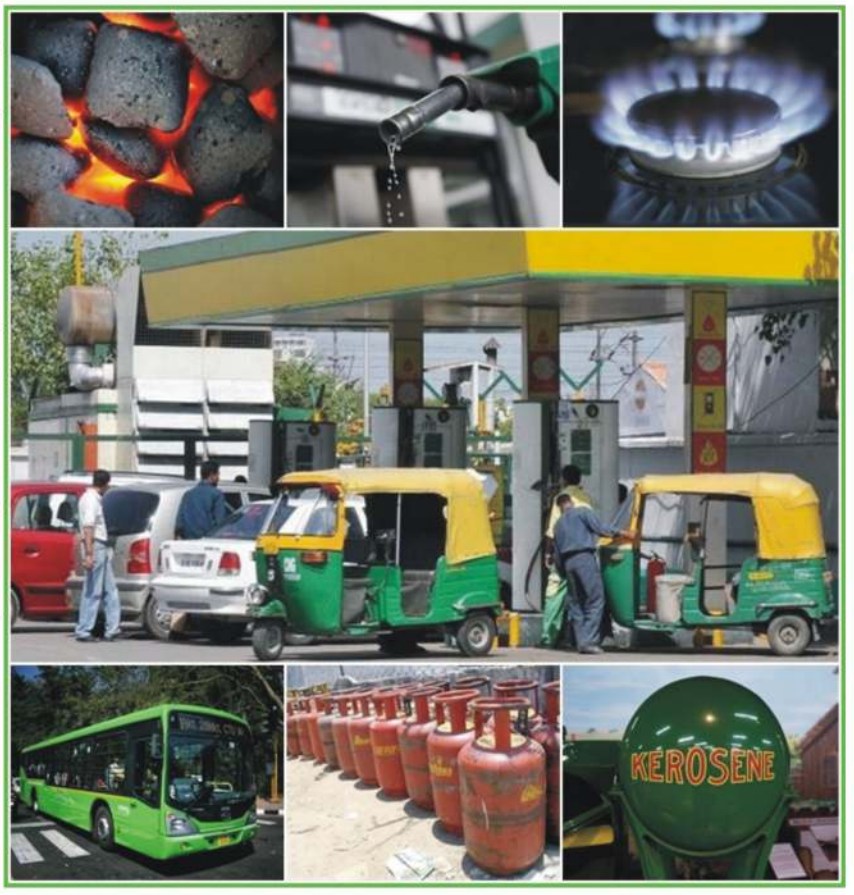
Chandigarh State of Environment

EDITORIAL

CONVENTIONAL ENERGY SCENARIO, CHANDIGARH



The increasing population, upgrading economic status, and increasing demand of rapid transportation, leads to the exponential increase in the number of vehicles all over the world, and the similar trend is being witnessed in city beautiful Chandigarh also. Accomplishment of the required demand of the above sector resulting in the drastic augmentation in the consumption of conventional sources of energy mainly coal and petroleum based fuels such as petrol, diesel, kerosene, aviation turbine fuel (ATF), compressed natural gas (CNG) and liquified petroleum gas (LPG) etc. As the category itself indicates that these sources are conventional in usage i.e. their exploitation has been continued since the beginning of machine age. Most of our daily energy needs from cooking, heating, industrial processing and transportation are fulfilled by the conventional sources of energy. The geographical location of U.T. Chandigarh blessed the city with the undisputed supply of almost all energy resources through railways, road transport and airways from the adjoining states of Haryana, Punjab & Himachal, and the other parts of country. Due to high per capita income, the consumption of electricity, LPG and other petroleum products is also notably high in the city. The city has the highest per capita vehicle ownership in the country, very high vehicle density and the multiple modes of public transport for the daily commuters mostly from the cities of neighboring states However the well maintained road network, tree covered pathways, cleaning with the latest techniques, strict traffic rules and traffic management by the attentive officers makes the system very easy going. The stats of conventional energy resources and their consumption trend the city are discussed further.

For Private Circulation only

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Paryavaran Patra

ENVIS CENTRE
Deptt. of Environment
Chandigarh

(VOLUME 10.1.0)
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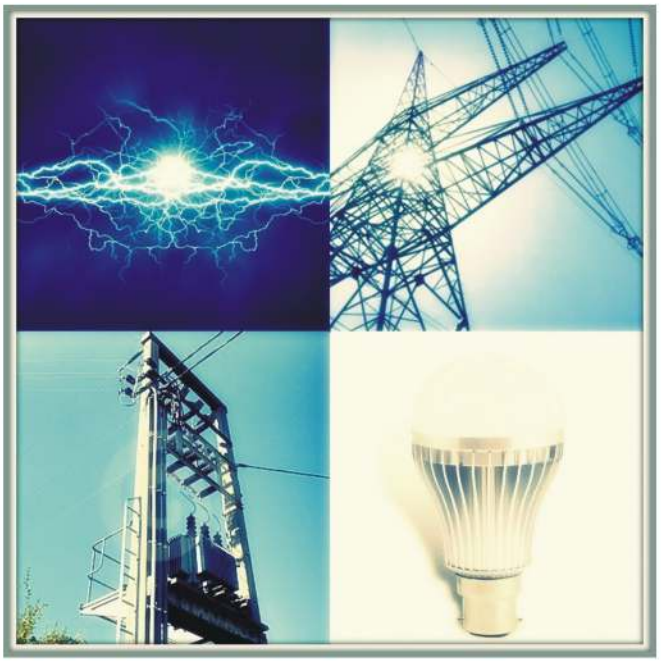
e-mail : ch@envis.nic.in
Web : www.chandigarhenvis.gov.in
www.chenvis.nic.in

Electricity Consumption in Chandigarh



Union territory of Chandigarh is a small city with 114 Sq. Km. Land area; came into existence with effect from 01 Nov 1966 after the re-organization of Punjab. Chandigarh does not have any provision of power generation of its own and is totally dependent on the neighboring states for its power supply. Chandigarh Administration has taken over the local distribution of electricity from PSEB on 2nd May, 1967. Almost 1480 employees are working daily under the guidance of four Executive Engineers and a Superintending Engineer.

As per the latest authenticated stats, the electricity consumption in Chandigarh was about 1419.27 M.kWh for the year 2013-14; which is being met from different Central/State Generating stations. Chandigarh is receiving 67% of its power through Mohali (PSEB), about 10% through Dhulkote (BBMB) and remaining 23% through Nalagarh. The city has a transmission network which comprises of one 220 KV Sub Station (Kishangarh Manimajra), thirteen 66 KV Sub Stations, five 33 KV and 1746 11 KV Sub Stations. At present (31/03/2014), the city has total 2,00,000 consumers (metered connections) including 1,72,653 domestic consumers, 21,428 commercial consumers and about 2300 industrial consumers. The city beautiful has an allocation of 166-236 MW of power from different Central/State Generating Stations during different hours of the day. Besides this, Chandigarh Administration is maintaining 19437 numbers overhead tube type of street light points within sectors (i.e. V-6) roads.

The increase in population along with the ever-increasing per capita consumption of electricity is making it difficult for the city to meet the demand. This in turn leads to power cuts and discontinuous supply of power to both residential and non-residential areas including the industrial area; as a consequence of the productivity is being affected. Chandigarh draws power from the central grid and has no power generation of its own. But yet electricity consumption of Chandigarh is increasing by 52 million units every year.

Source: http://chandigarh.gov.in/engg_web/pages/about_us.html, Supdt. Er. Electy.OP Circle,U.T.Chandigarh

Trends in Electricity Consumption

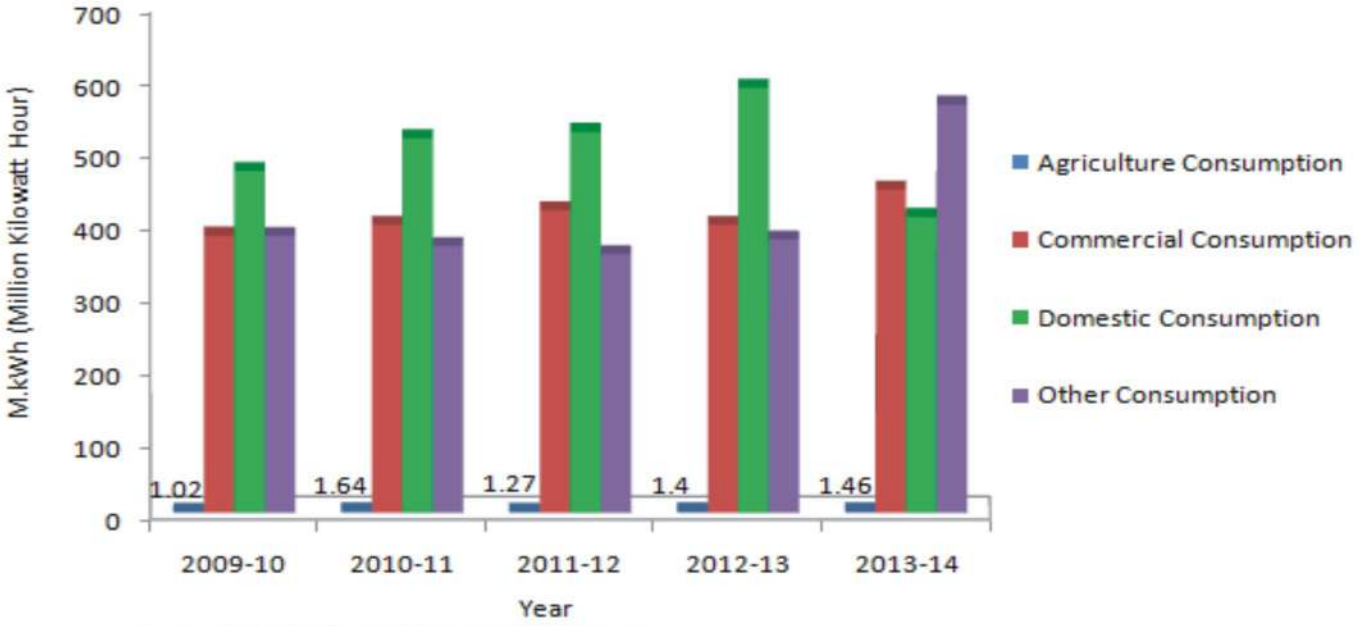
With the gradual increase in the population of the city the demand for electricity has also been increased at a faster rate. Compared to the total electricity demand in 2009-10, nearly 182 Million Kilowatt Hour (M.kWh) electricity consumption has been increased till 2013-14 in just four years as shown in the table.

Year	Total Consumption (mkWh)
2009-10	1237.58
2010-11	1284.45
2011-12	1301.47
2012-13	1362.73
2013-14	1419.27

Source: Supdt. Er. Electy, 'OP' Circle U.T Chandigarh.

Sector Wise Electricity Consumption

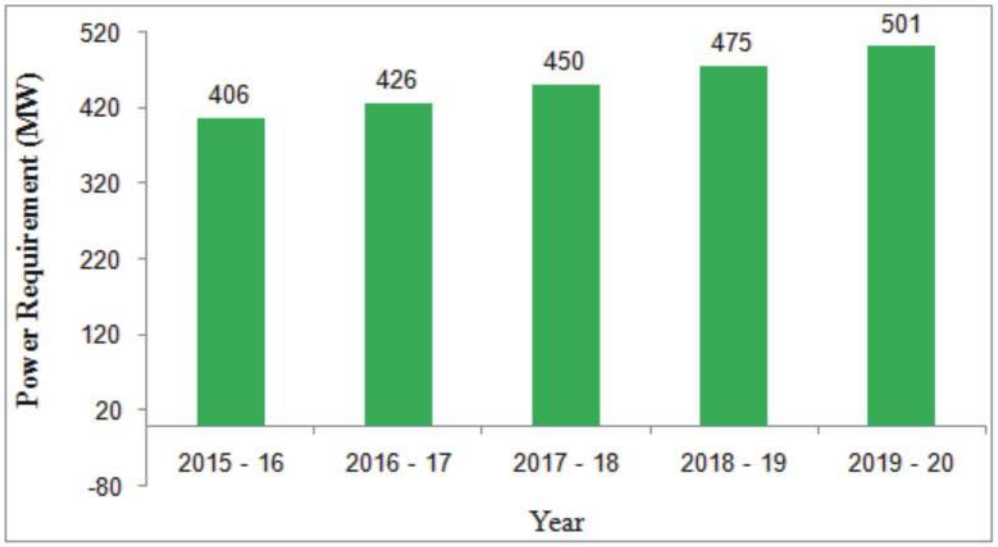
As per census 2011 report, Chandigarh lies amongst the highly populous cities of India with the remarkable per capita income. Due to high living standard the domestic consumption of electricity was observed to be the highest compared to the other sectors. Agricultural sector of Chandigarh is shrinking day by day due to rapid growth and expansion of the city. With ,merely 600 Hectare crop area, the agriculture sector of the city has the lowest electricity consumption of just 14.6 lac units per annum.



Source: Supdt. Er. Electy, 'OP' Circle U.T Chandigarh.

The sector wise annual consumption of electricity is given by the graph below, which describes the trends of the electricity consumption in last 5 years in Chandigarh. The major portion of the supplied electricity has been observed to occupied by the commercial, domestic and other sectors such as Industries, Public Lighting, Educational & medical Institutions, Govt. Buildings & offices etc. It can also be concluded from the graph that the consumption of electricity, in all sectors is been increasing every year due to the increase in population, and electrified modern lifestyle. It was further observed that the demand of electricity will grow more in the near future as the per capita consumption of electricity has increased by nearly 11% in the last 5 years, as shown in figure below. The increase in the future demand of electricity in U.T. Chandigarh can also be predicted on the basis of increasing trend of per capita electricity consumption in the city.

Expected increase in the demand of electricity



Difference in the demand and supply of electricity

Sr. No	Months	Availability of Power (MW)	Anticipitated Demand (MW)	Shortage (-)/(+) in MW
1	April - September	220 - 260	270 - 370	(-) 50 to 110
2	October - November	150 - 210	170 - 230	(-) 20
3	December - March	130 - 190	110 - 230	(+) 20 to (-) 40

Source: Supdt. Er. Electy, 'OP' Circle U.T Chandigarh.
Http://chandigarh.gov.in/engg_web/pages/about_us.html

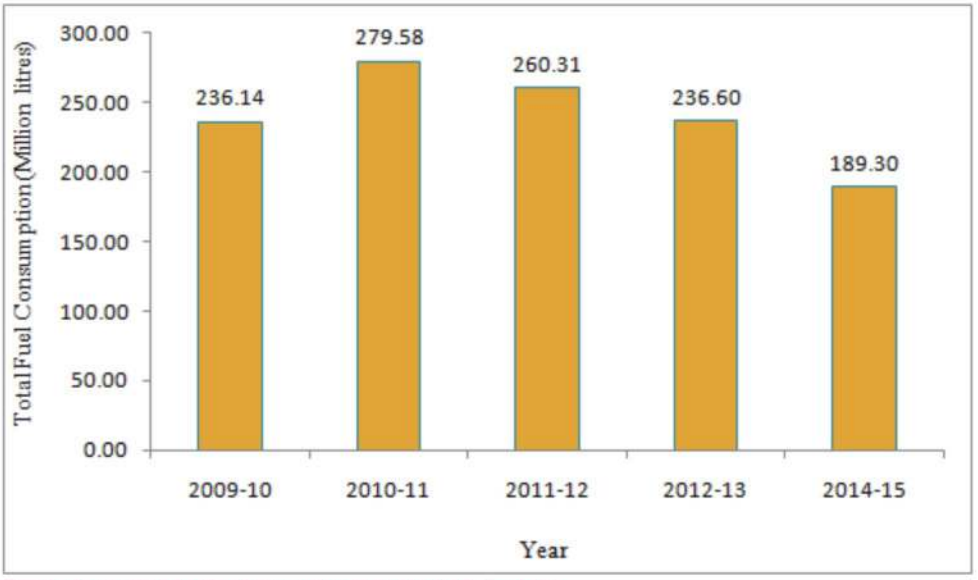
Consumption of Petroleum Products

Year	Petrol Incl. ULP	High Speed Diesel	Kerosene	Light Diesel Oil	Furnace Oil	Low Sulphur heavy Stock	Total (killolitres)
2009-10	118855.00	90564.00	9033.00	451.00	9595.22	7639.33	236137.55
2010-11	128519.00	92757.00	9155.00	682.00	38328.09	10137.84	279578.93
2011-12	124671.00	88175.00	7491.00	444.00	34958.94	4566.75	260306.69
2012-13	116921.00	92167.00	3941.00	573.00	22274.27	722.37	236598.64
2014-15	82147.00	70651.00	3037.00	479.00	32982.82	0.00	189296.82

Source:Statistical Abstract Chandigarh-2011,2012, & 2013

The city beautiful is one of the densely populated states/UTs of India but counts for the top cities having highest per capita income in the country. The city also stands first in the vehicular ownership per house hold in the country. Due to the high economic status, wide roads, managed traffic and large vehicular ownership, the fuel consumption, comprising mainly the petroleum products, is also very high in city beautiful.

However, the total consumption of fuel may vary year by year depending on a vast number of factors such as fuel price and fuel based vehicular type. Among all petroleum products, petrol as a fuel has the highest consumption in the city due to comparatively higher number of petrol based automobiles. Although, the consumption of petrol has been observe to decrease slightly for the years of 2012-13 & 2013-14, possibly due to the variety of advanced fuel efficient diesel vehicles (cars) and high prices of petrol. At the same time the consumption of diesel has shown an increase from 325.42 kl in 2010-11 to 542.37 kl in 2013-14 due to the above mentioned reasons. The product wise consumption of petroleum products during last 5 yr is given by the table above.

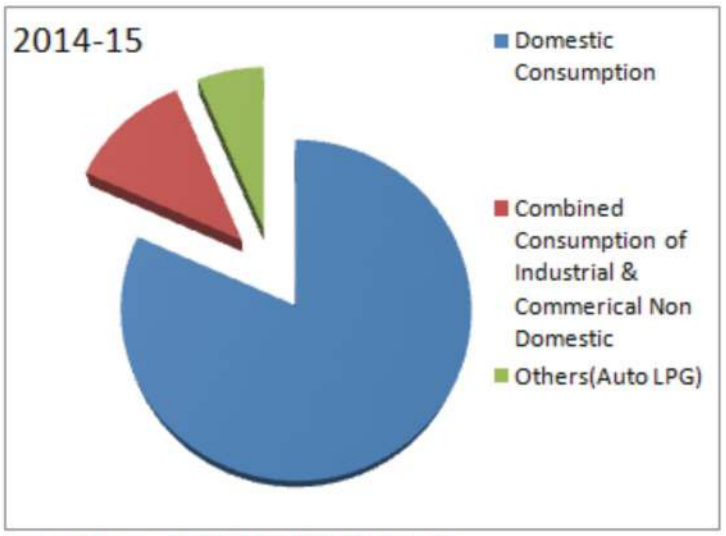


Source:Statistical Abstract Chandigarh-2011,2012, & 2013

E-mail : ch@envis.nic.in Web : www.chandigarhenvis.gov.in

LPG Consumption in Chandigarh

Liquified Petroleum Gas (LPG) is the major source to fulfill energy requirements related to cooking food and food products in households and commercial eateries of Chandigarh. LPG supply to almost all houses of Chandigarh has been done by three major LPG suppliers named Indian Oil Corporation (IOC), Hindustan Petroleum Corporation (HPC) and Bharat Petroleum Corporation (BPC). Chandigarh administration has promoted the use of LPG in the territorial villages, instead of traditional fuel sources to control the air pollution caused by their combustion, greenhouse gas emission and to preserve the natural resources like Forests of the area. With the stabilization in population upto the par, nuclear family trend and development of commercial sector, the LPG connections are showing the decreasing trends compared to the preceding year. During 2014-15, total number of LPG connections released was 12,293; whereas the number was 20,036 for the session 2012-13. Year- wise details of the LPG connections released by different companies and the trend of LPG consumption in Chandigarh are given below by the table and graph



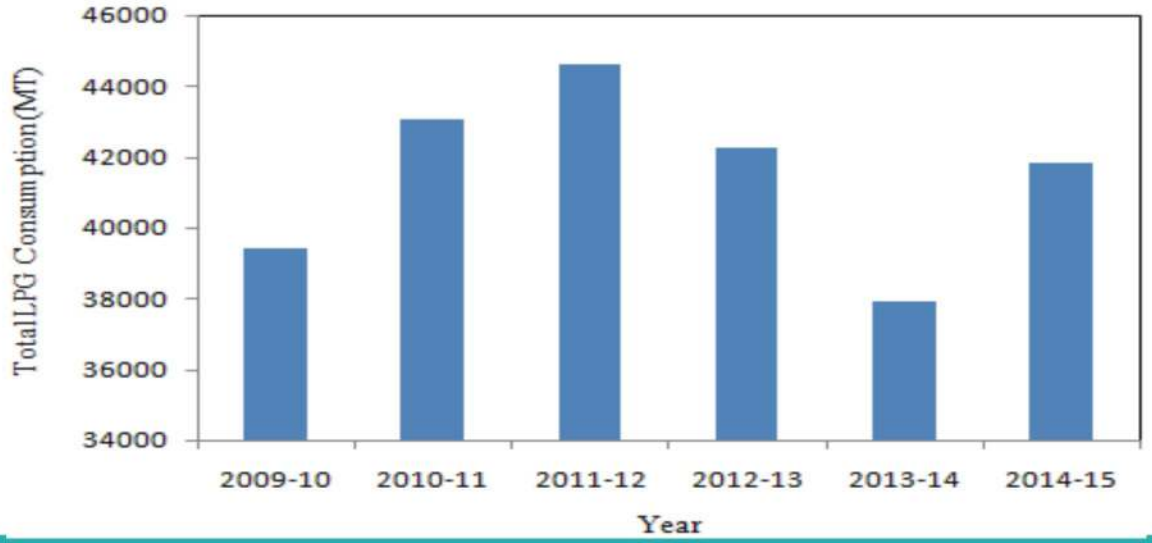
Source: Manager-SLC, UTC, HPCL, Chandigarh

Number of Connection Released:

Year	No of Connections Released(IOC)	No of Connections Released(HPC)	No of Connections Released(BPC)
2009-10	8771	2349	847
2010-11	9646	2379	1363
2011-12	8928	3717	2049
2012-13	15603	2779	1654
2013-14	17735	1764	4011
2014-15	8075	1817	2401

Source: Manager-SLC, UTC, HPCL, Chandigarh

Yearly (total) consumption of LPG in Chandigarh:

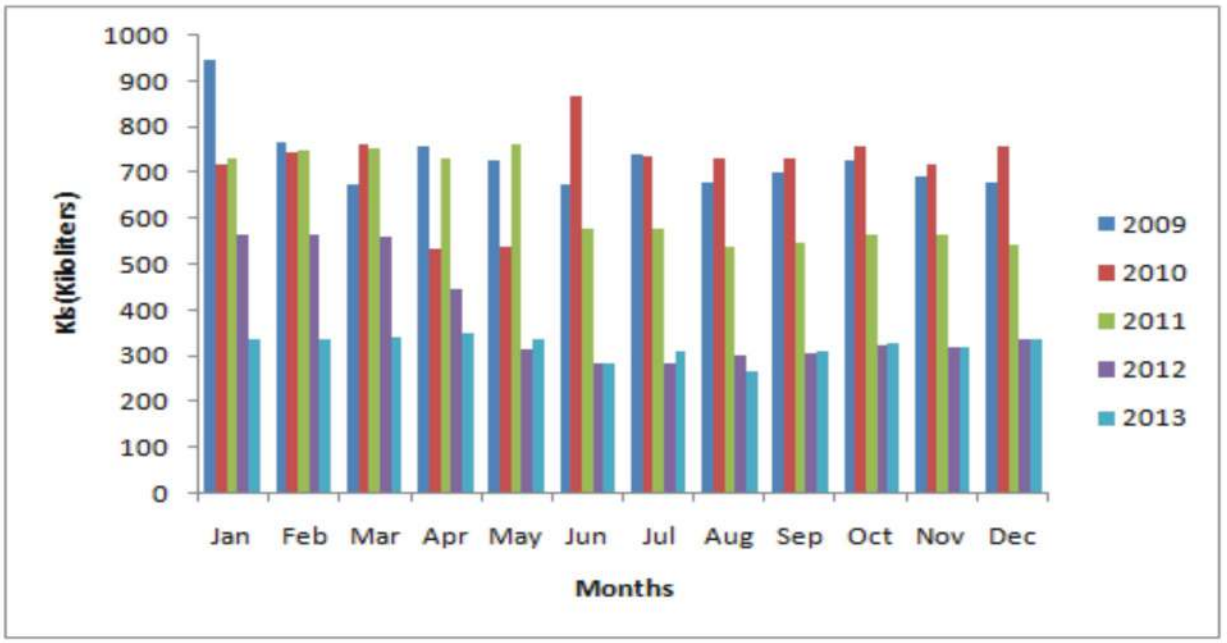


Kerosene oil consumption

Kerosene oil is comparatively low grade liquid petroleum fuel which was used for the domestic purpose only; for heating, cooking & combustion. Presently, with the increase in the availability and affordability of LPG, the use of kerosine oil is decreasing at a faster rate. As depicted from the stats of last few years, the use of kerosine oil has decreased to 56.25% till 2013 from the consumption of 8764 kl (2009) to 3834 kl (2013).

Year	Total	Unit
2009	8764	kl
2010	8592	kl
2011	7636	kl
2012	4550	kl
2013	3834	kl

Trends of the monthly consumption of kerosene oil



Souce : Asstt. Food & Supply Officer Sector-17 Chandigarh

Monthly consumption of kerosene oil in Chandigarh describes that irrespective of the seasonal changes the consumption pattern of the oil remains almost similar throughout the year, which shows the consumption is related to the regular house hold purpose only.

Coal and Coke consumption in Chandigarh

Coal and coke (derivative of coal produced by the destructive distillation of regular coal) are generally used at household level, restaurants, street vendors and small scale industries for cooking, heating, steam production and smelting purposes.

COAL & COKE		
Year	Import	Unit
2009-10	2154312	Qtl
2010-11	786990	Qtl
2011-12	306950	Qtl
2012-13	933954	Qtl
2013-14	1860276	Qtl

Feedback Form

Dear Information Seeker,

ENVIS CENTRE, Chandigarh furnishes you with the services to collect and disseminate information related to environment of Chandigarh. To share information with us you are requested to fill up the form given below.

Your feedback is valuable to us and will be highly appreciated

- Name _____
- Designation _____
- Department _____
- Address _____

_____ City _____

- State _____ Country _____ Pin |_|_|_|_|_|_|
- Phone _____ Fax _____
- Email _____

Your views on scope of improvement :

- Interest Area _____

I would like to have information on following :

e-mail : ch@envis.nic.in • Web : www.chandigarhenvis.gov.in

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NewsLetter
Paryavaran - Patra

ENVIS CENTRE TEAM

Mr. Santosh Kumar
(Director, Environment)

Mr. P.J.S Dadhwal
(Project Coordinator)

Er. Mohit Badhwar
(Programme Officer)

Mr. Abhishek Sraw
(Information Officer)

Mr. Surinder Sharma
(I.T. Assistant)

Ecological Debt Day (13 August 2015)

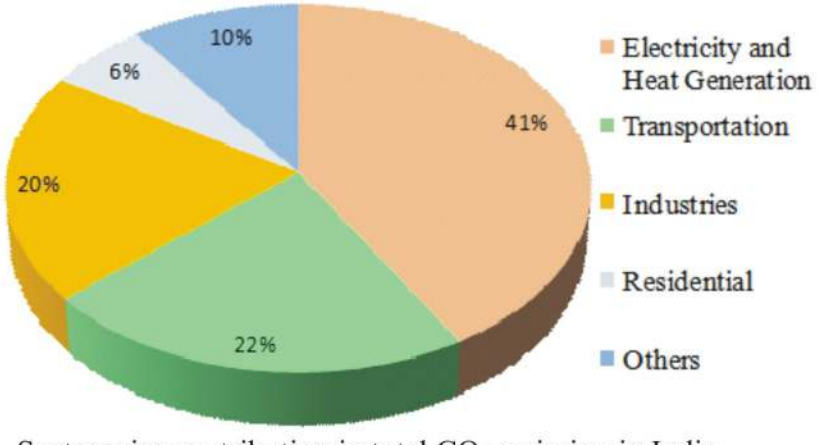
The excessive exploitation of conventional energy resources leads the world to an unrecoverable environmental loss and uncountable health disorders. The arising problems of global warming, air pollution, acid rains and deteriorating human health are a few, but, the most hilarious effects of conventional fuel combustion. The current pace of the exploration of conventional resources would very soon lead to their extinction from the world. It has been calculated that the global consumption of conventional resources per year is far more than their natural annual replenishment globally. To aware mankind about the possible future energy crises, New Economics Foundation, UK originally developed the concept of Ecological Debt Day worldwide. The phenomenon is the calculated illustrative calendar date on which humanity's resource consumption for the year exceeds Earth's capacity to regenerate those resources that year.

[{World Biocapacity}/{World Ecological Footprint}] x 365 = {Ecological Debt

Contribution of conventional sources in Green House Gas (CO_2) emissions:

The use of conventional fuels is one of the major contributors towards the global CO_2 emissions and the increasing air pollution worldwide, resulting in the well proved problem of Global Warming and Climate change. Following is the details of fuel wise and sector wise contribution of India towards CO_2 emissions.

Sources	CO_2 Emission
Coal (kg)	2.750 kg
Gasoline (L)	2.392 kg
Kerosene (L)	3.157 kg
Diesel (L)	2.640 kg
LPG (L)	1.66 kg
CNG (kg)	2.626 kg



Sector wise contribution in total CO_2 emission in India

From:

ENVIS Centre
Department of Environment
Chandigarh Administration
3rd Floor, Paryavaran Bhawan,
Madhya Marg
Sector 19B,
Chandigarh - 160019

Ph. No: 0172-2700065, 0172-2770998
Email: ch@envis.nic.in
Website: www.chandigarhenvis.gov.in

To,

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