

**EDITORIAL****ENERGY SCENARIO : UT, CHANDIGARH****Introduction**

Energy is the mainstay of India's total economic growth and development. It serves as a tradable commodity in boosting the national income and thus promoting a nation's international diplomacy. It also serves as an input into the production of goods and services in the country's transport sector, agriculture, industry, health, education and security. Nowadays, some of the common energy carriers are coal, petroleum, natural gas, nuclear fuels, biomass etc. Of all these, the most widely used energy sources are the fossil fuels which accounts for more than 80% of global primary energy consumption. Despite their efficient extraction and use, it is estimated that these natural reserves will eventually be depleted at a point where further exploration would be highly uneconomical. Thus, it becomes imperative to switch to energy efficient alternatives and conservation systems.



Chandigarh for that matter has been maintaining its statistics of renewable energy resources. With commendable initiatives and approach taken by experts in the field, Chandigarh has developed as a Model Solar City through Chandigarh Renewal Energy, Science and Technology Promotion Society (CREST). A Master Plan for Model Solar City was prepared by, "The Energy and Resource Institute" (TERI) and approved by MNRE, GOI in Jan 2012. The Solar City plan is aimed to reduce the dependence on conventional electricity consumption. MNRE, GOI has set 69 MW as Solar PV target for Chandigarh Administration to be achieved by 2022. Projects have been identified to achieve the target, Chandigarh has already installed and commissioned 23.487 MWp Grid tied Rooftop Solar Plants as on 30th Sept., 2018 including private sectors.

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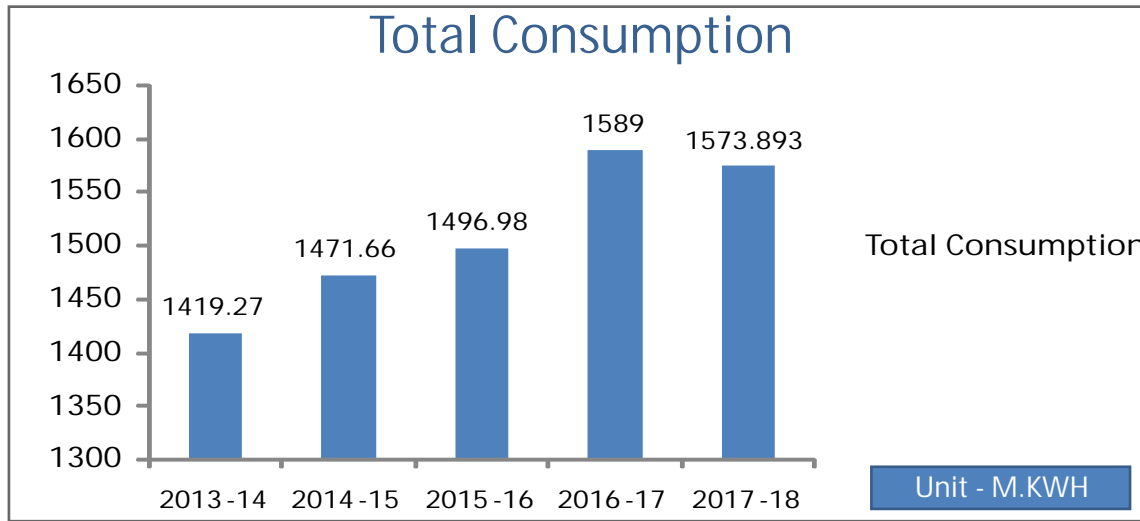
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Electricity Consumption in Chandigarh

With escalating population, there was been an ever-increasing per capita consumption of electricity, making it difficult for the city to meet the demand. This scenario, in turn leads to discontinuous supply of power and recurrent power cuts to residential, non-residential and industrial areas. As Chandigarh draws its power supply from the central grid and has no power generation of its own, it puts immense pressure with a threat of low productivity on the grid. With the gradual increase in the population of the city the demand for electricity has also been increased at a faster rate. The total electricity demand in 2013-14 was 1419.27 MKWH as compared to 1573.89 MKWH in 2017-18. There has been nearly an increase of 10% consumption over the past 6 years.



Source: Statistical Abstract Chandigarh-2003-2017

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Working towards an Energy Efficient India

Standards & Labelling
providing consumer an informed choice about the energy saving

Perform, Achieve & Trade
Regulating energy efficiency in industries

Energy Conservation Building Code
first step towards promoting energy efficiency in the building sector

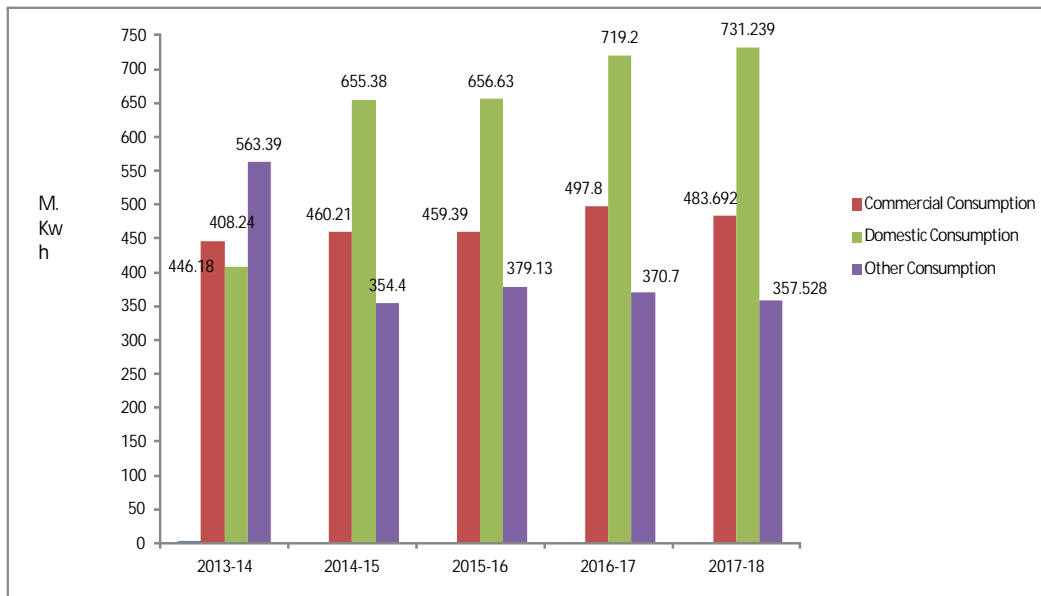
Demand Side Management
encourage consumers to optimize their energy use





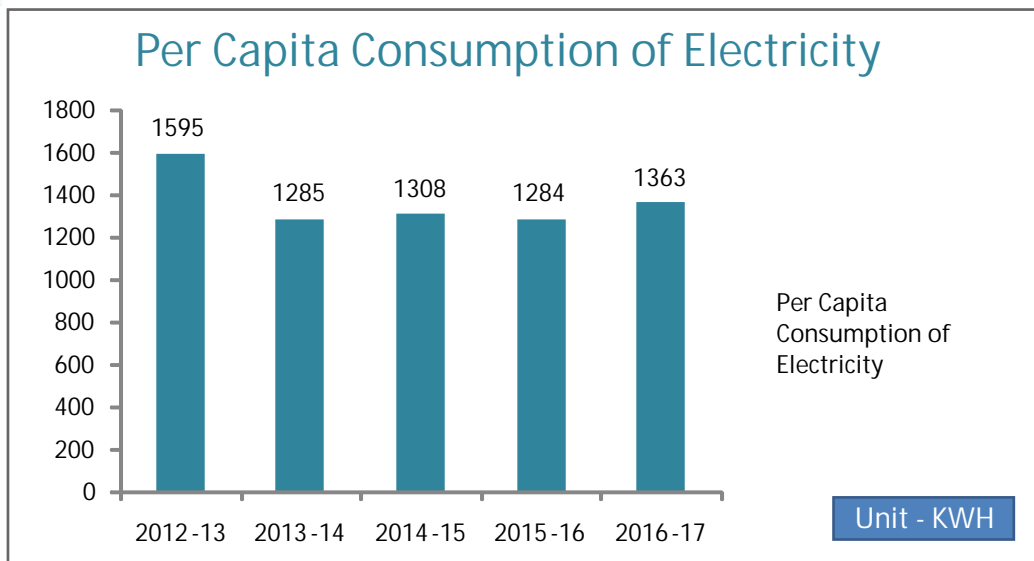
Sector Wise Electricity Consumption

As per census 2011 report, Chandigarh lies amongst the highly populous cities of India with a remarkable per capita income. Due to high living standards, the domestic consumption of electricity was observed to be the highest as 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. The major portion of the supplied electricity has been occupied by the domestic, commercial and other sectors such as Industries, Public Lighting, Educational & Medical Institutions, Govt. Buildings & offices etc. Sector wise annual consumption of electricity is given by the graph below-



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

Per Capita Electricity Consumption in Chandigarh



Source: Statistical Abstract Chandigarh-2003-2017



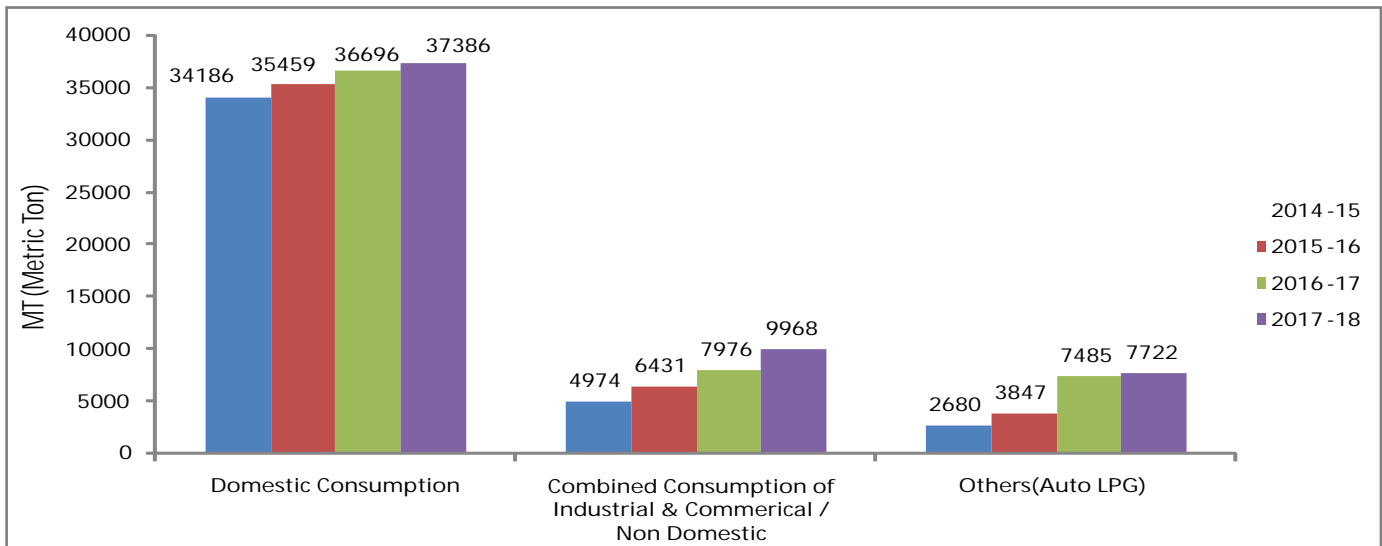
Per-Capita Energy Consumption is one of the most used policy indicators, both at national and international levels. The UT of Chandigarh does not have any generation capacity of its own and most of the power/energy requirement is being met from the allocation of central generating stations. The energy and peak demand is well managed in the UT of Chandigarh as there is no shortage observed in peaking or energy requirement from last many years. The annual energy demand of the UT has been estimated to grow from level of 1734 MU in FY 2014-15 to 2328 MU by FY 2018-19 with prevailing rate of demand growth. The UT has already planned additional capacity availability of 157.27 MW by financial year 2018-19 through allocations from central generating stations, purchases from Independent Power Producers and through renewable energy sources in a phased manner.

Energy Consumption of Petroleum Products

Products	2012-13	2013-14	2014-15	2015-16	2016-17	Units
Petrol Incl. ULP	116921	82147	85161	142061	137065	Kilo-Litres
High Speed Diesel	91267	70651	82636	138776	123609	Kilo-Litres
Kerosene	3941	3037	2035	921	95	Kilo-Litres
Light Diesel Oil	573	479	447	502	571	Kilo-Litres
Furnace Oil	19827	29359	39975	63303	0	Metric Ton
Low Sulphur heavy Stock	643	0	0	0	11910	Metric Ton
L.P.G. Connections	323685	343538	408289	425112	269584	No.s (Cum.)

Source: Statistical Abstract Chandigarh-2003-2016

Consumption of LPG in Chandigarh



Source: Manager-SLC,UTC,HPCL,Chandigarh.



Number of LPG Connections

Indian Oil Corporation

Year	No of Connections Released(IOC)	Customer Population(Lacs)(IOC)	DBC Population(Lacs)(IOC)
2013-14	17735	2.07	1.14
2014-15	8075	1.8	1.64
2015-16	12104	2.73	1.86
2016-17	10614	2.81	1.99
2017-18	7418	2.88	2.06

Hindustan Petroleum Corporation

Year	No of Connections Released(HPC)	No of Connections Released(HPC)	No of Connections Released(HPC)
2013-14	1764	0.54	0.35
2014-15	1817	0.55	0.35
2015-16	2055	0.58	0.42
2016-17	1908	0.59	0.4
2017-18	1819	0.6	0.41

Bharat Petroleum Corporation

Year	No of Connections Released(BPC)	Customer Population(Lacs)(BPC)	DBC Population(Lacs)(BPC)
2013-14	4011	0.54	0.35
2014-15	2401	0.55	0.35
2015-16	2664	0.58	0.42
2016-17	1329	0.59	0.4
2017-18	815	0.6	0.41

Source: IOC (Indian Oil Corporation), HPC (Hindustan Petroleum Corporation), BPC (Bharat Petroleum Corporation), DBC (Double Bottle Connection)

LPG is a type of conventional source and is the mainstay of Chandigarh's electricity requirement. It is the main source to fulfil energy requirement related to activities like cooking food, commercial eateries etc in Chandigarh. The main suppliers of LPG in Chandigarh are done by 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 nearby forests and water bodies. With the increase in population, trend of nuclear families and progressive development of commercial sectors, the number of LPG connections are also increasing day by day. Maximum consumption of LPG has been seen in the domestic sector, followed by industrial and commercial consumption.

Plan for Augmentation of Generation Capacity / Availability of Power

The UT of Chandigarh is receiving power from 400/220 KV Nalagarh S/S of Power Grid Corporation of India Limited (PGCIL), from Mohali S/S of Punjab State Transmission Corporation Limited (PSTCL) and from Dhulkote S/S of Bhakra Beas Management Board. As per generation plan, UT of Chandigarh has already tied up for supply of additional capacity of around 118.27MW by FY 2018-19 (allocation from Central Sector and IPP Projects) through conventional energy sources. In addition, 39MW, through non-conventional energy sources is also tied up.

As such the total available capacity by FY 2018-19 is expected to be 496.94MW (452.62MW conventional and 44.32MW Renewable) (Source- 24X7 Power for all, Joint Initiative of GOI & UT, Chandigarh Constant efforts to achieve the aforesaid efforts are already under action. Year-wise targets are presented the following table-



S.No.	Particulars	Year wise Existing & Likely Capacity to be added (MW)-Cumulative				
		As on March 2015	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
A. State Sector						
a.	Thermal	0	0	0	0	0
b.	Hydro	0	0	0	0	0
c.	RES (MNRE)	0	0	0	0	0
B. Private/IIPs						
a.	Thermal	0	0	0	0	0
b.	Hydro	0	0	0	0	0
c.	RES (MNRE)	5.32	6.32	18.32	30.32	44.32
C. Central Generating Station (CGS)						
a.	Thermal	67.64	67.64	67.64	129.16	129.16
b.	Hydro	240.26	280.26	280.26	297.01	297.01
c.	RES (MNRE)	0	0	0	0	0
D.	Nuclear	26.45	26.45	26.45	26.45	26.45
Total:		339.67	380.67	392.67	482.64	496.94

Source: 24x7, Power for all, Joint Initiative of GOI & UT of Chandigarh, 2016.

Solar Targets Achieved in Chandigarh

Year	Solar Water Heating	Solar Cookers	Solar Street Lights	Blinkers	Battery Operated Vehicles	Solar Green House
2014-15	2,45,330	105	894	14	560	32
2015-16	2,45,330	105	894	14	560	37
2016-17	2,45,330	105	894	14	562	37
2017-18	2,45,330	105	894	14	567	37
Units	LPD	No.	No.	No.	No.	No.

Source: Department of Science and Technology and Renewable Energy

The climate of Chandigarh is subtropical humid, thus high intensity solar light is available during most of the period throughout the year. Therefore, taking account of the benefits of a cleaner energy, Chandigarh has adopted a well structured plan to move forward in the field of generating solar energy using solar water heaters, solar lights, blinkers, solar cookers and electricity generation by solar panels etc. Chandigarh is leading towards a complete solar city concept and the administration has installed solar panels over the roofs of houses, commercial buildings schools, colleges, universities, hospitals and government offices etc. Solar lights has been installed at various places including parks, street lights at road sides and blinkers on the roads interconnecting different sectors of the city. As per MNRE program the UT has planned to develop Grid Connected Roof Top Solar Projects as per the following program:

Financial Year	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
SPV Capacity (MW)	13.63	24.91	37.47	42.58	54.39	69.08

Source: 24x7, Power for all, Joint Initiative of GOI & UT of Chandigarh, 2016.





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 :





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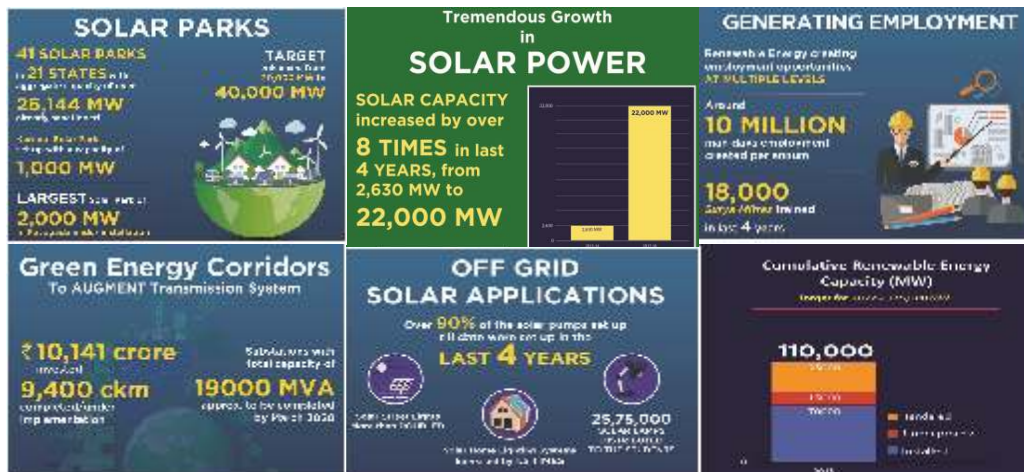
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(I.T. Officer)

Growth of Renewable Energy in India



Achievements of Chandigarh on Solar Front

- 7.395 MWp SPV Power plants have been installed at 8 nos. of Water Work Stations of MC, off-set with the conventional Power consumption. Thus using 100% Green Power for pumping the water.
- SPV Power plants have been installed at all the 14 nos. of Govt. College which is off-setting the 100% in-house need.
- 80% schools have been covered with SPV power plants which meets the 100% requirement of power of the all the Govt. Schools.
- 500kWp SPV Power Plants have been installed at ISBT Sector-17 (300kWp) & ISBT, Sector-43 (200kWp) meeting their 100% in-house need.
- 10kWp Floating SPV Power plant has been installed at Dhanas Lake, Chandigarh for Aeration of the lake to improve the biological health condition of the lake.



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To,

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